

A new GE survey of 400 senior executives from the UK's high tech manufacturing industry found that...





Executive Summary

GE commissioned in-depth interviews with 400 senior executives in UK high tech manufacturing companies for this first GE High Tech Manufacturing Index and Report. Interviews were conducted by ORB (The Opinion Research Business) by telephone in late November and December 2010.

Companies questioned manufacture a wide range of high tech components and products - for example, medical instruments and devices, laser optics, industrial sensing equipment, specialist telecoms equipment, industrial ceramics, precision components, aviation controls and components, engineering cutting tools, industrial and specialist gases. (For more details on how the sample was selected please see page 13).

The high tech manufacturers surveyed were confident about the current performance and prospects for their own businesses and positive about the current state of the UK high tech manufacturing sector in general. However they also highlighted issues and problems on the horizon which, if not dealt with, could hinder potential growth. These included a shortage of suitable engineering and manufacturing skills, a lack of availability of capital and increasingly fierce overseas competition.

Strong confidence

Three quarters of the high tech manufacturers questioned for the survey were upbeat about the current performance of their business and confident about the future. An encouraging 75% said they felt either positive (45%) or very positive (30%) about the current performance of their own business. They also felt that conditions had improved strongly over the last year with 60% feeling that prospects had improved to a greater or less extent over the past 12 months. Businesses surveyed were also confident about their prospects for the next 12 months with 71% expecting their business performance to improve.

95% of respondents expected to increase staffing levels or keep them the same over the next year. The average increase in head count is estimated to be 6%.

Emerging international competitors

The research demonstrates that UK high tech manufacturing businesses are extraordinarily international in outlook and sales. The vast majority of businesses (82%) exported products in some way to international markets.

Of the exporting companies identified, almost half (46%) had seen an increase in the proportion of turnover accounted for by exports in the past 12 months. An even higher proportion (62%) were expecting international orders to increase.

35% of those questioned said they were either currently selling to, or looking to expand into, a 'worldwide' market, demonstrating the highly international nature of these businesses. When asked to name up their top five markets they were currently selling into or targeting the USA (18%) and European countries such as Germany (17%) and France (16%) featured most highly as did China (10%), the Middle East/UAE (7%) and India (6%).

Generally businesses expected to expand their export sales over the next five to 10 years, with the average mean % of predicted export turnover per company being 48.6% of turnover within five years rising to a mean average of 53.8% by 2021.

There was less optimism about the UK's likely place in global manufacturing league tables in five and ten years. When asked where they thought the UK would be in global rankings in five years participants predicted the UK will drop at least two and a half places from 6 to 8.6.

When thinking about ten years hence, the high tech manufacturers were even more gloomy predicting a drop to a likely mean position of 9.3 in the league table.

India was cited as the prime candidate to eclipse the UK with 59% of respondents saying it would overtake the UK in the league tables. When asked where the fiercest global competition was coming from at the moment, the top three countries mentioned by respondents were USA (1), China (2), Germany (3). In ten years however they saw this line-up changing to China (1), India (2) and Germany (3).

The skills gap

When asked 'what are the skills, qualifications and personal attributes that your business most needs from new employees but finds most difficult to obtain?' 20% of respondents cited unprompted engineering skills and 11% mentioned mechanical or manufacturing skills. Another 10% felt it was difficult to find applicants with the right commitment and positive 'can do' attitude. Other respondents (7%) cited a lack of technical and scientific skills, and 6% a shortage of suitable vocational qualifications.

31% of those questioned said they had recruited people from outside of the UK owing to a lack of suitably qualified people from within Britain itself.



75%...

...said they felt either positive (45%) or very positive (30%) about the current performance of their own business.

Where government can help?

When asked 'what actions, decisions or initiatives that could be taken by the UK government do you think would be of greatest assistance to businesses such as yours?' – one of the most mentioned topic was education and training, with 16% saying there should be more focus on vocational training and apprenticeships (as an alternative to university) and 8% saying there should be more focus on education in general including technology and engineering degrees. The other four top areas where respondents felt government should be taking a lead were reviewing taxation and export duties, the reduction of bureaucracy and red tape, helping with funding and investment and more promotion of manufacturing industries.

Over one third of those in the market for capital described funds as being 'impossible to obtain on acceptable terms'.

A diverse sector

The survey also highlights the diverse nature of UK high tech manufacturing. Some businesses which share similar characteristics emerged from the research including...

The transformers

Many of the businesses surveyed have evolved and responded to changing demand with 44% saying they had 'developed over time from being a traditional to an advanced/high tech manufacturer'. 5% of companies questioned dated back to pre 1900.

The 'lab coat' entrepreneurs

55% of those polled said that on balance the business had been established by entrepreneurial academics, scientists or engineers who went into business.

The meteors

Some of the businesses questioned are extremely fast growing. In terms of growth expectations for 2011, 11% of businesses questioned said they would expect to achieve 20% plus growth with 4% saying they expected to achieve 50% growth.

The globetrotters

Another feature of many of these businesses is a highly international customer base. When asked which geographic markets apart from the UK they sold to 35% answered worldwide. Of those that did sell overseas 46% said that the proportion of their turnover that was accounted for by exports had increased over the past 12 months.

The niche players

Mainstream sectors represented included aviation, automotive, chemicals, healthcare, electronics, energy, agriculture, marine and construction. However when asked to describe 'what does your business do?' a myriad number of niche specialisms were mentioned.

One interesting sub-set identified in the survey was businesses involved in seemingly traditional activities, such as sail making, but with a high tech twist. The range of other businesses was immense including niche specialisms such as the manufacture of aircraft interiors, specialised optical and dental equipment for dentists and opticians, products to service laboratory 'clean rooms', high tech crash barriers and traffic light systems, advanced artificial knee joints and hip joints, high specification marine navigational equipment, motorcycle chassis and suspension systems and many others.



A new GE survey of 400 senior executives

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industry found...

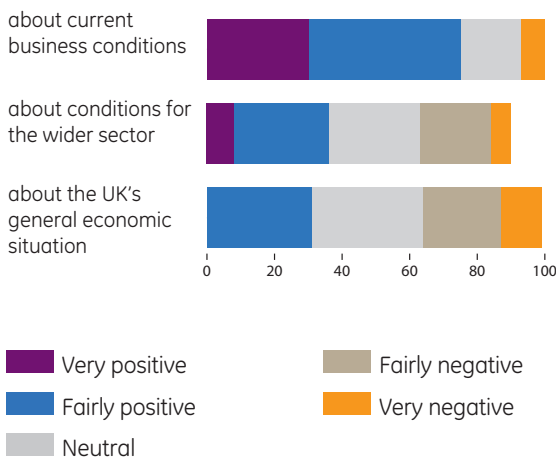
- ▲ 75% say their businesses current position is positive
- ▲ 62% of exporters foresee an increase in the value of international orders with an average rise of 12.3%
- ▲ 44% expect to increase employee numbers over the next 12 months with an average increase in head count estimated at 5.7%
- ▲ 36% said that overall conditions for UK high tech manufacturing businesses were positive
- ▼ 7% say their businesses current position is negative
- ▼ 15% felt that overall business conditions for high tech manufacturing businesses would worsen
- ▼ 16% cited the cost of raw materials as a major barrier
- ▼ 16% cited access to capital as a major barrier
- ▼ 17% cited the economy as a major barrier



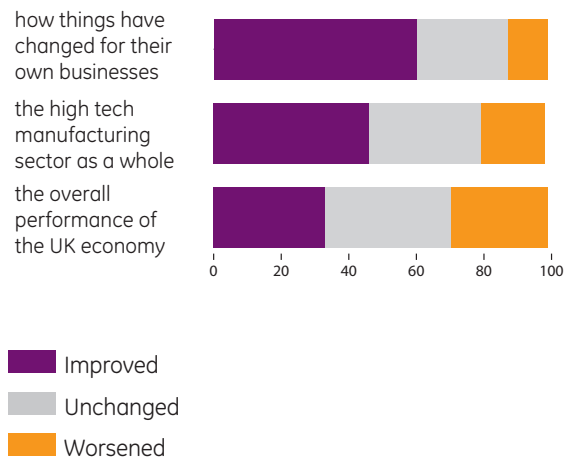


Reasons to be cheerful – a sector enjoying growth

When asked what they felt...



Thinking about...



Current business conditions

When asked how upbeat they felt about current business conditions, the majority of high tech manufacturers questioned were extremely positive about the performance of their own business, above conditions for UK high tech manufacturing and economic conditions in general. An encouraging 75% said they either fairly positive (45%) or very positive (30%) about the current performance of their own business, compared with just 7% who felt negative and 18% who has a neutral view.

When asked what they felt about conditions for the wider sector, they were also optimistic although not as much as for their own business. Over one third (36%) described conditions for UK high tech manufacturing in general as very positive (8%) or fairly positive (28%), 33% felt conditions were neutral overall and 27% felt they were either fairly negative (21%) or very negative (6%).

In contrast there was significant concern about the UK's general economic situation with 35% of those questioned saying they felt very negative (12%) or fairly negative (23%) about the general economic situation of the UK, 33% saying they felt neutral and just 31% feeling very or fairly positive about the general economic situation.

Verdict on 2009 – improving prospects for high tech manufacturing

Thinking about how things have changed for their own businesses over the past 12 months, compared to Q4 2009, there was strong optimism with 60% feeling that prospects have improved to a greater or lesser extent, 27% feeling that they are unchanged and just 12% sensing that they have worsened.

Thinking about the high tech manufacturing sector as a whole, almost half (46%) of businesses feel that prospects have improved compared with a year ago, with a third (33%) stating they are unchanged and just 19% feeling they have worsened.

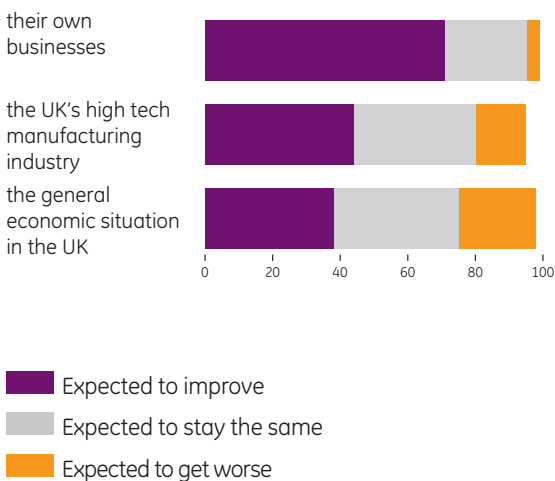
Generally those surveyed felt the overall UK economy had done less well. 33% of business feel that prospects for the UK economy have improved in some way, while 37% feel they are unchanged and 29% feel they have got worse.



Looking ahead - exports key to growth but rising costs a worry ...

Looking ahead to the next 12 months there are more positive views expressed both about the UK economy in general as well as the high tech manufacturing sector. Again, businesses were most optimistic about their own future business performance with 71% expecting this to improve, 24% expecting it to stay the same and just 4% expecting it to get worse. 44% expect conditions for the overall UK's high-tech manufacturing/technology businesses to improve compared with 36% who expect it to stay the same and just 15% who expect it to worsen.

In terms of the general economic situation in the UK, 75% of businesses expect things to stay the same or improve with just 23% expecting things to get worse. When asked to identify the main areas of opportunity for future business performance, the principal factors cited by 23% of respondents are exports and global markets. This is followed by general demand for products and services (13%), technological developments/innovations/new products and services (11%), growth in the market (10%) and an improvement in trading conditions (8%). Other factors cited include renewable energy, public sector investment, exchange rates and private sector investment.



62%...

...of respondents are optimistic about overseas orders, expecting them to increase by an average of 12% over the next year

Thinking about barriers that need to be overcome, businesses feel that the nation's economy presents the largest obstacle (17%), closely followed by operating costs and raw material costs (16%), accessing capital/financial backing (16%), red tape (12%), and global competitors (11%).

When considering future staffing requirements businesses are reasonably optimistic with 95% of respondents expecting either to increase staffing levels or keep them the same. Just 4% expect to reduce their head count. The average increase in head count is estimated to be 6%.

Businesses are optimistic about their future order books, with half of respondents anticipating orders from UK customers to increase by an average of 6% and 41% expecting they will stay at the same level. Just 8% expect orders to decrease.

Respondents are even more optimistic about overseas orders with 62% expecting these to increase by an average of 12%, just under one third (32%) expecting them to stay the same, and 2% anticipating a drop.



An industry selling worldwide

International outlook and opportunity

The research demonstrated that UK high tech manufacturing businesses are extraordinarily international in outlook and sales. In terms of proportion of turnover accounted for by exports to markets outside of the UK, the vast majority of businesses (82%) had at least 1% of turnover as a result of export. Of the exporting companies identified, almost half (46%) had seen an increase in the proportion of turnover accounted for by exports in the past 12 months, with 43% showing the same proportion as last year and only a small number (just 8%) showing a decrease in turnover from exports. Of those exporters who had seen export turnover increase in the last year, the mean percentage increase was 25%. 6% (9) companies had seen a considerable increase of between 91-100%.

Of the 8% of companies reporting a decrease in turnover, the majority saw a fall of 1-10% (40% of respondents) with no companies seeing a decrease of more than 70% in turnover from exports. The mean decrease was 27%. The net percentage increase in exports across all exporters in the survey was 9.6%.

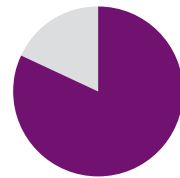
Respondents also presented a positive outlook on domestic orders when asked about expectations for the total value of orders for products/services from UK customers. Half (50%) expected to see an increase in UK based orders and just over a third (41%) expecting orders to stay the same.

Of those expecting to see an increase, 70% predicted a rise in UK orders of between 1-20%. Among those questioned the mean percentage increase was 15.4%. 2% of manufacturing businesses expected to see a domestic rise in orders for products/services of between 91-100% in 2011.

A minority of companies (8%) predicted a decrease in UK orders for products/services. The mean percentage decrease was 19.3%, with a majority of these businesses (34%) expecting a decrease of between 1-10%. Overall, the results showed that UK high tech manufacturing businesses could expect to show a net increase in domestic orders of 5.8%.

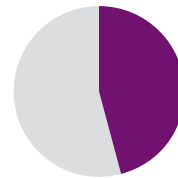
In terms of orders for products/services from the international marketplace, an even higher proportion (62%) were expecting orders to increase with 32% expecting orders to remain the same. Just 2% of companies expected to see a decrease in orders from customers outside the UK.

Of those expecting to see an increase from international orders, 66% predicted a rise in orders of between 1-20%. The mean percentage increase was 21.1%. 4% of exporting manufacturing businesses expected to see a rise in international orders for products/services of between 91-100% in 2011.



82%

saw some of their revenue derived from international exports.



46%

of exporters saw the turnover accounted for by exports increase



9.6%

was the average uplift in turnover accounted for by exports



62%

of exporters foresee an increase in the value of international orders



12.3%

the average rise in value that exporters predict for international orders



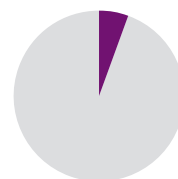
50%

predict that orders from UK customers will increase in 2011



8%

predict that orders from UK customers will decrease in 2011



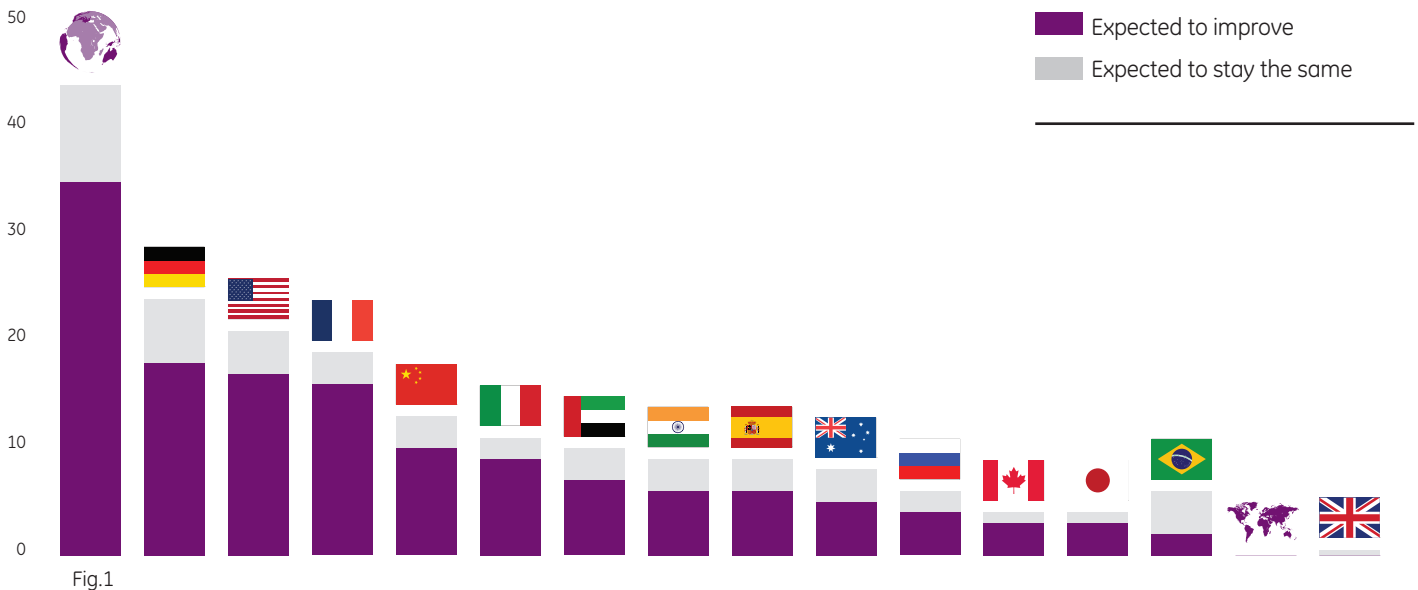
5.8%

is the average predicted increase for orders made by UK customers

A minority of companies (2%) were predicting a decrease in orders for products/services from the international marketplace. The mean percentage decrease was 28%, with a majority of these businesses (50%) expecting a decrease of between 1-10%. Overall, the results showed that UK high tech manufacturing businesses could expect to show a net increase in international orders of 12.3%.



A worldwide customer base



The survey also asked respondents which geographic markets worldwide they were either currently selling to or targeting for expansion in (not including the domestic market).

35% of those questioned said they were either currently selling to, or looking to expand into, a 'worldwide' market, demonstrating the highly international nature of these businesses. When asked to name up their top five markets they were currently selling into or targeting the USA (18%) and European countries such as Germany (17%) and France (16%) featured most highly as did China (10%), the Middle East/UAE (7%) and India (6%).

Other markets included in the responses included Russia (4%), Japan (3%), Brazil (2%), and Central/West Africa (2%). Only 17% of respondents were not planning any expansion outside of the UK. In all more than 60 specific countries were mentioned by these manufacturers when asked to name their five largest markets.

When asked which markets they hoped to be selling in in five to ten years time, European countries featured highly including Germany (4%) and France (3%), with Brazil (4%) and India (3%) also featuring as desirable new markets. The worldwide market (9%) and the USA (6%) featured most highly, with less than 1% of businesses sticking to a domestic market for the foreseeable future.

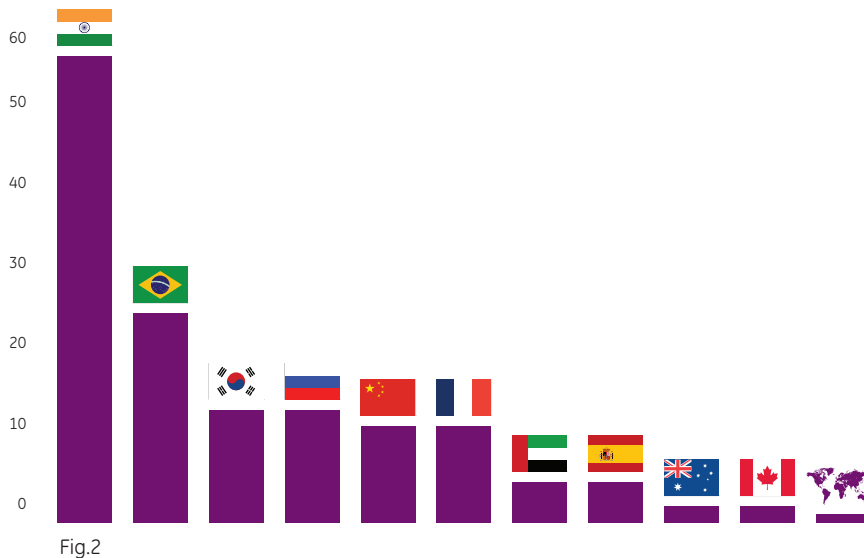
Businesses in the survey were also asked to look forward and predict what proportion of turnover they expected to be accounted for by exports in both five and ten years time. Generally businesses expected to expand their export sales over the next five to 10 years, with the average mean % of predicted export turnover per company being 49% of turnover within five years rising to a mean average of 54% by 2021.

A tumble down the league tables?

Global rankings predictions gloomy

There was less optimism about the UK's likely place in global manufacturing league tables in five and ten years time. When asked where they thought the UK would be in global rankings in five years time participants predicted the UK will drop at least two and a half places from its current 6th position to at least 8th. The global ranking predictions for all 400 respondents when averaged out gave the UK a league table placing in five years time of 8.6.

When thinking about ten years hence, our high tech manufacturers were even more gloomy predicting a likely mean position of 9.3 in the league table. Just 54% believed the UK would still be in the Top 10 by 2021, and 15% were even more pessimistic saying they felt the UK would be ranked between 11th and 15th.



Export polls

Fig.1

Geographic markets currently selling to and hoping to be selling to in the next 5-10 years

Country	Present	Future
Worldwide	35%	9%
USA	18%	6%
Germany	17%	4%
France	16%	3%
China	10%	3%
Italy	9%	2%
Middle East/UAE	7%	3%
India	6%	3%
Spain	6%	3%
Australia	5%	3%
Russia	4%	2%
Canada	3%	1%
Japan	3%	1%
Brazil	2%	4%
Other	0%	0%
None	0%	<1%
(Sticking to UK)		

Export polls

Fig.2

Which countries are thought most likely to overtake the UK in their scale of manufacturing

Country	Percentage
India	58%
Brazil	26%
South Korea	14%
Russia	14%
China	12%
France	12%
Middle East/UAE	5%
Spain	5%
Australia	2%
Canada	2%
Other	1%

India seen as in the ascent

When asked which emerging markets would eclipse the UK over the next five years, the most popular candidate by a long margin was India – identified by over half (58%) – with Brazil (26%), South Korea (14%), Russia (14%), France and China (both 12%) also featuring strongly. Twenty five different markets were identified as having the potential to overtake the UK in the rankings indicating that UK businesses perceive competition from a number of different markets globally.

In terms of competition for winning business, manufacturers were asked to identify where their competition was currently coming from. 8% believed their stiffest competition was from businesses in the local area/region, whilst almost a third (30%) thought that competition from businesses UK-wide was the biggest threat. A significant proportion (59%) identified international markets as the biggest competitors, specifically the USA (21%), China (19%) and Germany (17%).

In ten years time however this changes to an overwhelming proportion (70%) predicting that the fiercest competition will come from abroad; China leads the way with 36% (a rise of 17 percentage points on current indicators), with India second on 18% (up from 5% on how currently competitive they are viewed as) and Germany (down to 13%) and USA (down to 12%) next. The number of businesses which thought that competition from within the UK would be toughest declined (18%) as did that of businesses within the local area/region (5%).



The skills gap – still an issue

48%...

expect to increase
employee numbers
over the next 12
months with a...



Positive about current recruitment levels

Skills, including shortages of engineering and manufacturing skills in new recruits, emerged as a major business issue among the 400 senior executives questioned in the survey.

The respondents were positive about recruitment levels over the next year. When asked whether over the next 12 months there were looking to increase, reduce or keep the same number of employees 48% of those questioned said they were looking to increase staffing levels over the next year, with 48% saying they were expecting to keep them the same. Only 4% said they would be looking to reduce staffing levels. When asked to quantify the likely level of staff recruitment, the mean percentage increase was 13.2% amongst those respondents who said that they were looking to increase employee numbers in 2011. The total mean percentage increase across all respondents was 5.7%. Those questioned who said they would be reducing staff (4%) indicated a mean % decrease of 16.6%.

While respondents were optimistic about hiring levels they also talked extensively about some of the difficulties of finding the right people with the right skills to fill some vacancies. When asked 'what are the skills, qualifications and personal attributes that your business most needs from new employees but finds most difficult to obtain?' 20% of respondents cited unprompted engineering skills and 11% mentioned mechanical or manufacturing skills. Another 10% felt it was difficult to find applicants with the

5.7%...

estimated average
increase in head count



right commitment and positive 'can do' attitude. Other respondents (7%) cited a lack of technical and scientific skills, and 6% a shortage of suitable vocational qualifications. 19% of those questioned said they were able to find all the skills in new recruits that they required.

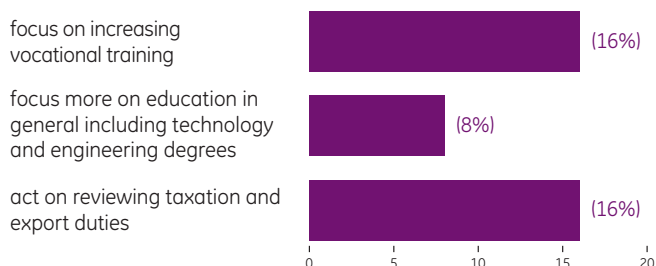
Accessing overseas recruits

31% of those questioned said they had recruited people from outside of the UK owing to a lack of suitably qualified people from within Britain itself. 7% of those questioned said they had done this 'often', 10%, 'sometimes', 15% said they had, but 'rarely'. 68% said they had never had to do this.



Government asked to play a role

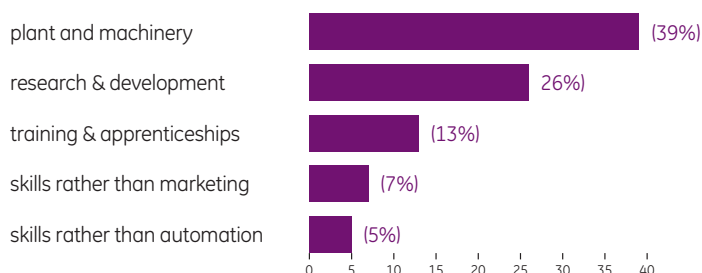
The government should...



Skills also emerged as a main area where the respondents felt the UK government could play a role in helping high tech manufacturing businesses. When asked 'what actions, decisions or initiatives that could be taken by the UK government do you think would be of greatest assistance to businesses such as your's?' – the most mentioned topic was education and training, with 16% saying there should be more focus on vocational training and apprenticeships (as an alternative to university) and 8% saying there should be more focus on education in general including technology and engineering degrees. 16% of respondents also felt the government could help by acting on reviewing taxation and export duties. The other three top areas where respondents felt government should be taking a lead were the reduction of bureaucracy and red tape, helping with funding and investment and more promotion of manufacturing industries.

Skills seen as bottom line improver

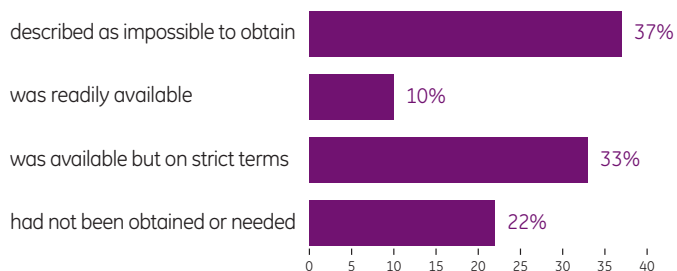
Investment is required most in...



When asked in which areas they felt that investment into their business was most required or would yield the biggest return in terms of contribution to the bottom line, education and training emerged as the third most cited priority below investment in plant and machinery and research/product development. 39% of respondents said plant and machinery was the area in which they thought investment into their business was most required or would yield the biggest return in terms of contribution to the bottom line, 26% said investment in research/product development and 13% cited investment in training and apprenticeships. Interestingly more respondents felt investment in skills/apprenticeships would yield bigger returns in terms of contribution to the bottom line than sales and marketing (cited by 7%) or measures to improve automation/improve processes (mentioned by 5%).

Complaints about access to capital

Access to capital...



Access to capital was regarded by most of the businesses as essential for growth but many were finding difficulty in sourcing finance. Three in ten of those in the market for capital described funds as being 'impossible to obtain on acceptable terms'. When asked 'how would you describe the current availability of capital for investment, over a third of those (37%) in the market for capital said they regarded the terms on offer as being "unacceptably strict" or that capital is "impossible to obtain". Only 10% felt capital was readily available, while a further 33% said it was available but on fairly strict terms. 22% said they had not tried or needed to obtain capital recently. On average respondents spent 11% of their business turnover on research and development expenditure and investment.



A diverse sector

The survey also highlights how high tech manufacturing in the UK embraces a wide variety of businesses, large and small, and in a myriad of different industries and sectors.



The transformers

Despite their current focus on advanced technologies, many of the companies have a long history. 27% of the businesses polled had been in existence since the 1960s with 11% of the businesses surveyed founded before 1945, and 5% dating back to pre 1900. The mean average year in which the businesses polled were established as a trading entity was 1972. Many of the businesses surveyed have evolved and responded to changing demand with 44% saying they had 'developed over time from being a traditional to an advanced/high tech manufacturer'.



The 'lab coat' entrepreneurs

Other younger businesses had often been established by entrepreneurs who had an original idea (20%) or set up by directors who had previously worked in another high tech business (22%). 55% of those polled said that on balance the business had been established by entrepreneurial academics, scientists or engineers who went into business, while 30% said the business had been set up by business people making an investment, with 13% commenting that it was a mix of the both or the business had been set up in a different way. Interestingly just 2% said they had specifically been spun out of a university department or research project.



The meteors

Some of the businesses questioned are extremely fast growing. 11% of those questioned said they expected total business turnover in 2010 to show growth levels of over 20%. 4% said they had achieved growth levels of 50% for their business. In terms of growth expectations for 2011, 11% of businesses questioned said they would expect to achieve 20% plus growth with 4% saying they expected to achieve 50% growth.



The globetrotters

Another feature of many of these businesses is a highly international customer base. When asked which geographic markets apart from the UK they sold to 35% answered worldwide. When respondents mentioned specific export markets, a wide variety of markets emerged as important customer areas. Unsurprisingly top markets mentioned included Germany (17%), USA (18%) and France (16%). Beyond this other markets specifically cited included China, Italy, the Middle East, India, Spain, Australia, Russia, Canada, Japan and Brazil. 82% of those questioned said at least 1% of their sales came from export markets. Of those that did sell overseas 46% said that the proportion of their turnover that was accounted for by exports had increased over the past 12 months. And many saw global markets as their biggest opportunity in the future. 23% of those questioned said they regarded export to global markets as the main area of opportunity for their business in the future.



The niche players

The survey highlighted how many of these UK high tech manufacturing businesses operate in very specialist and sometimes esoteric business areas. Mainstream sectors represented included aviation, automotive, chemicals, healthcare, electronics, energy, agriculture, marine and construction.

However when asked to describe 'what does your business do?' a myriad number of niche specialisms were mentioned.

One interesting sub-set identified in the survey was businesses involved in seemingly traditional activities, now with a high tech twist. Good examples were sail making, fishing boat builders and producers of high tech and specialised milking machinery.

There were also many examples of the more unusual and esoteric areas that UK high tech manufacturers operate in. Manufacturers surveyed were making products as diverse as aircraft interiors, specialised optical and dental equipment for dentists and opticians, products to service laboratory 'clean rooms', high tech crash barriers and traffic light systems, advanced artificial knee joints and hip joints, high specification marine navigational equipment, motorcycle chassis and suspension systems and many others.



Survey details

400 interviews conducted by ORB (The Opinion Research Business) among senior executives of high tech businesses. Interviews conducted by telephone 23rd November – 15th December 2010.

All businesses had at least 10 employees and were characterised as high tech manufacturers on the basis that they:

A:

To at least some degree “use a high level of design or scientific skills to produce technologically complex products and processes - usually of a high value.”

B:

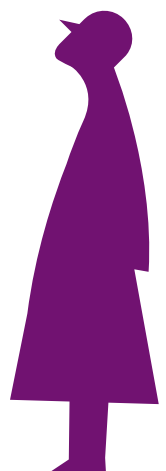
Are a primary manufacturer of components, equipment or products rather than an assembler of components that are sourced entirely from external suppliers.

C:

Are characterised by at least three of the following attributes:

- Has a highly skilled workforce
- Produces technically complex (Hi-Tech) products
- Uses advanced, innovative or cutting-edge technology to produce its products
- Produces products with a high added-value
- Utilises a high level of design, innovation or creativity
- Makes extensive use of computer, high-precision and information technologies
- Engages in a large amount of Research & Development (R&D)
- Has high levels of productivity i.e. not necessarily high volume but efficient production processes / high value of output per employee etc
- Provides consultancy and/ or advisory services in relation to its products

Companies questioned manufactured a wide range of high tech components and products - for example, medical instruments and devices, laser optics, industrial sensing equipment, specialist telecoms equipment, industrial ceramics, precision components, aviation controls and components, engineering cutting tools, industrial and specialist gases.





Contact details

30 Berkeley Square
London W1J 6EW

Mark Maguire

GE UK Corporate Communications Director
mark.maguire1@ge.com

Ilan Jacobs

Head of GE UK Government Relations
ilan.jacobs@ge.com