

# SKILL GAPS IN THE AUTOMOTIVE SUPPLY CHAIN IN THE WEST AND EAST MIDLANDS 2005 **BEST PRACTICE**

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## BEST PRACTICE



### 8.1 Introduction

Issues about best practice are investigated in this section, allowing an insight into what firms expected or needed from their suppliers in terms of their expertise, performance, and customer service. The discussion commences by looking at instances of best practice within the surveyed organisations, and then identifies best practice firms within their own industry or activity, or, in the case of SMEs, what firms were their key competitors. Questions were then put to vehicle manufacturers and 1st tiers about how well their suppliers met certain best practice criteria, while the SMEs were asked to evaluate how well they considered that their own competences compared with the best practice firms or key competitors that they had singled out. All firms were asked whether the best practice firms or key competitors had any different or better skills, or other business advantages, compared to their own. Lastly, they were asked about any changes or improvements they needed to make to enable their companies to compete more effectively.

### 8.2 The existence of best practice within their organisations

Responses were received from 19 firms when asked to pick out any instances of best practice in their organisations. Among these, only two firms – a vehicle manufacturer and a 1st tier – stated that they did not have any instances of best practice within their own companies at present, and another 1st tier was unsure, though still managed to illustrate some specific features. The vehicle manufacturer was highly dismissive of their own organisation's attainments, stating that there was: "Not a single best practice we can point to where we are leading the industry, but we are making progress." Asking why prompted the following admission:

*"Our plant was considered the worst [of the group]. Now we are middling, but we haven't reached our targets. We are still not building and shipping to schedule as we should but are doing twice as much as a year ago. Demand has gone up but we have not kept up with it. We use the following performance metrics: red = failing to meet within 10%; yellow = within 10% of meeting performance metrics; green = meet on time. For customer delivery and production planning performances we are red. This plant is losing money. It does not satisfy customers. We have too many employees."*

The 1st tier was not sure because they were very insular

(they were owned by a vehicle manufacturer), and believed that they needed to do more benchmarking in order to: "...see where we are in the world."

Although some of the 6 SMEs that responded to this question were unsure whether their organisation did illustrate best practice in any way, all were able to highlight at least one facet of their working practices which they considered particularly sound or exemplary (see Table 8.1).

Two key questions are:

- *What specific criteria did firms believe related to 'best practice'?*
- *And were there any differences between vehicle manufacturers, 1st tiers and SMEs as regards 'best practice'?*

It is pertinent to bear in mind that the criteria identified tended to differ according to the role of the interviewee. For instance, Human Resources/Training Managers tended to mention issues about training and workforce development or human resources policies and working practices. Individuals whose roles were in manufacturing, commercial, purchasing or supply chain management tended to focus on production or performance achievements.

The range of factors set out in Table 8.1 is notable for their identification of:

- Training and workforce development (6 firms in all).
- Company policies and working practices (4).
- Production and internal systems (8), and
- Meeting customer requirements (7).

Various differences are apparent between the vehicle manufacturers, 1st tiers and SMEs:

- Training and workforce development criteria were mentioned by the vehicle manufacturers (3 out of the 3 who identified best practice), but by relatively few of the suppliers (3 out of 15 who identified best practice).
- Only one firm – a vehicle manufacturer – spoke of best practice in terms of supplier support and development.
- No SMEs were among those to specify company human resources policies and working practices.

- The majority of firms highlighted their production and related internal systems, though those which were focused specifically on manufacturing processes tended to be suppliers rather than vehicle manufacturers, certainly because they were more focused on build and assembly.
- Only the suppliers mentioned best practice in relation to meeting customer requirements, though perhaps this is not so surprising given the prioritisation of meeting performance targets and the customer-supplier pressures that existed.

**Table 8.1: Instances of best practice within their own organisations.**

Instances of best practice in their organisations	Number of firms		
	VMs	1st tiers	SMEs
<b>Re: training and workforce development: Total:</b>	3	2	1
Appraisals and identification of training plans/needs	1	-	-
Our internal development programme for employees	1	-	-
Our development of our people	1	-	-
Language skills provision	1	-	-
Development, deployment and monitoring within the company of our business objectives + linked to training	1	-	-
Our support for suppliers and supplier development	1	-	-
We invest in people, resource them with the right skills	-	1	-
Have linked training programme for all staff to performance related pay	-	1	-
The way we train our shopfloor apprentices	-	-	1
<b>Re company policies and working practices: Total:</b>	2	2	0
Our human resources policies	1	-	-
Leadership practice re regular dialogue with workforce	1	-	-
We operate within the constraints of Employment Law	-	1	-
Re Health and Safety, monitor safety reminders	-	1	-
Monitor absenteeism	-	1	-
<b>Re production and internal systems: Total:</b>	2	2	4
Our production system = lean exemplar	1	-	-
Our flexibility	1	-	-
Quality management and quality systems	1	-	-
Our company's version of the Toyota Production System is adapted to our needs	-	1	-
Some of our automation in manfr. lines is best in class	-	1	-
Some assembly cells are quite high re productivity	-	1	-
Creation of flexible manfr. cells in our new workshop	-	-	1
Some of the processes we do in our manfr. cells	-	-	1
We benchmark every year e.g. stockturns, growth, turnover per employees	-	-	1
Our lean manufacture is best practice in the manufacture of small diameter light metal components	-	-	1
<b>Re meeting customer requirements: Total:</b>	0	4	3
Almost 100% on time delivery as we are focused on our customers	-	1	-
Deliver high quality products to demanding customers	-	1	-
Deliver 100% on time and in full	-	1	-
Re JIT, we only manfr. what customers require	-	1	-
Our PPM and QCD are as good as a global supplier	-	1	-
Our QCD performance gets 98% rating from customers	-	-	1
We get high marks from customers for customer service, design expertise and development collaboration	-	-	1
We have put a lot of effort into maintaining quality, and have done a lot to adhere to international standards	-	-	1
We were supplier of the quarter for our biggest customer in 2nd quarter of 2004 re quality and schedule adherence and we have sustained that level for a full year	-	-	1
Our customer service re price and delivery	-	-	1
<b>No instances of best practice in our organisation</b>	1	1	0

Cases: 4 vehicle manufacturers, 9 1st tiers, 6 SMEs. Multiple responses were possible.

### 8.2.1 Training and workforce development

Six firms highlighted their best practice in relation to training and workforce development. Among these, and exceptionally, one vehicle manufacturer specified both their development of their own employees, as well as their supplier development.

Four of these 6 firms actually cited their training and development programmes, but only one – a vehicle manufacturer – singled out specific skill training, in their case language skill provision. This same firm also spoke of their method of appraisals and the identification of training plans, and, furthermore, believed that their assisted development programme for employees (which provided a contribution to any training they wanted) was: *“a good programme.”* An exhaust systems 1st tier highlighted their effort to resource all employees with the right skills. The only SME among this group of 6 (a machining and fabrications supplier) was clearly proud of their shopfloor apprentice training.

One of the vehicle manufacturers did not cite their training, specifically, but the way that they linked training objectives to the development, deployment and monitoring of their business objectives, saying: *“It ties in with agreeing the business objectives and upskilling/training objectives at the same time.”*

According to a 1st tier seating supplier, linking their training programme for all their staff to performance related pay was one of two best practices (the other related to Health and Safety). They had continuous individual development forms for training and upgrading, and also monitored rework.

### 8.2.2 Company policies and working practices

Among the 4 firms that considered that their company policies and working practices were exemplary, one firm highlighted their human resources policies (see Appendix 16). Another vehicle manufacturer was of interest for the considerable dialogue that their leadership had with their people. They asserted:

*“We have a good structure for communicating directly with the workforce e.g. regular weekly team meetings, monthly in-dialogue sessions, where a handful of the shopfloor are selected to meet with the plant director. These are facilitated. They are productive sessions.”*

For the seating 1st tier, they were best practice in their

concentration on Health and Safety for the workforce, reminding and monitoring them about such things as not wearing trainers and the use of goggles.

### 8.2.3 Production and internal systems

Eight firms, notably among the SMEs, considered that they represented best practice in terms of various aspects of production and/or their internal systems. One vehicle manufacturer pointed out that they were the lean exemplar due to their production system. However, they added, in what could be a defining statement: *“We are best practice compared to others, but internally we are still very critical of ourselves.”* A 1st tier steering and suspension components supplier had adapted this production system for their own use, which they considered represented their own best practice.

Certain suppliers pointed to various processes and systems. For instance, a 1st tier powertrain components supplier spoke of:

*“Some automation in our manufacturing lines is best in class e.g. our automated bar line is leading to a 100% productivity increase. Some assembly cells are also quite high as regards productivity.”*

Two of the SMEs (the sheet metalworkers and the machining and fabrications supplier) also highlighted their production cells, while for the tube components SME it was their lean manufacture in certain sections of the business. They singled out their production of small diameter light metal components.

### 8.2.4 Meeting customer requirements

Their ability to meet customer expectations, and/or provide very good customer service, was considered best practice by 7 suppliers. The only vehicle manufacturer to talk of performance attainments was the vehicle manufacturer that spoke adamantly about their inability to meet their performance targets.

Attainments that firms cited included:

- On time delivery/Just-in-Time/schedule adherence.
- Delivery both on time and in full.
- Quality, Cost and Delivery (QCD) in general.
- Price and delivery, without mention of quality attainment.
- Quality specifically.

- *Parts per million (PPM) achievement re elimination of faults.*
- *Design and development expertise.*

Only the 1st tiers spoke of 100% or near 100% performance attainment regarding delivery, though the tube components SME was proud of being supplier of the quarter for their biggest customer in the second quarter of 2004 for delivered quality and schedule adherence, and of sustaining that level for a whole year. The 1st tier engines supplier cited their delivery of: *“Some very high quality products to some very demanding customers.”*

The SME injection moulder mentioned receiving a 98% rating from customers for their QCD performance, though this is not what some might consider to represent global best practice. They also received high marks for their customer service, design expertise and development collaboration. But, according to a small wiring harnesses 1st tier, their own QCD was: *“As good as global suppliers.”* Similarly their parts per million attainment: *“We only lack on the development and resources side”* they asserted.

One of those to single out its quality achievements was a small SME supplying discs for gearboxes and brakes, who, despite possessing no quality accreditation, said: *“We put a lot of effort into maintaining quality and have done a lot to put our systems to adhere to international standards requirements.”* They also believed that their customer service, including price and delivery, was very good.

Key questions are:

- What are these firms benchmarking their own performance against? Is it against firms they know rather than acknowledged exemplars? And does the problem of insularity highlighted by the 1st tier engines supplier reflect a more widespread issue?

### 8.3 Suppliers considered to represent best practice

Questioning respondents about the firms in their global supply chains that they thought represented best practice in their industry or business activity, or (for the SMEs) were their key competitors, produced a list of exemplars noted by 16 firms comprising 5 vehicle manufacturers, 6 1st tiers and 5 SMEs (see Appendix 19). A 1st tier that could identify no best

practice firms stated that they only had 3 suppliers in total, none locally. Furthermore, the absence or limited possession of a Midlands (or in one case a UK-based) supply chain was also a feature of two of the vehicle manufacturers that did respond. Meanwhile, an East Midlands SME sheet metalworker could not even single out any key competitors, saying: *“They don’t compete on a level playing field. They are inferior quality.”*

#### 8.3.1 Opinions of the vehicle manufacturers

What are the distinguishing features of the best practice exemplars and key competitors? For the vehicle manufacturers, best practice firms were either in the UK or in western Europe – mainly in France or Germany, and one in Portugal. European firms included stalwarts like Bosch and Siemens, Valeo, and the French plant of the US company, Delphi Electrical Wiring Systems. These were praised for their reactivity and process control. A Japanese firm based in Portugal, Yazaki, was noted for its wiring harnesses. This firm was lauded for its Quality, Cost and Delivery (QCD) achievement, and overall capability to manage, but significantly, so were three UK firms, two of them in the Midlands – Denso and Johnson Controls.

Midlands firms included:

Σ Turner Transmissions, Wolverhampton: *“does a good job, and doesn’t let customers down.”*

- Summit Engineering, Leicester fabrications supplier: *“financially sound, does good work.”*
- Finnings UK, an engines supplier based also in Slough.
- Mitchell Diesel, a Nottingham-based distributor of Allison gearboxes.
- ZF UK’s Nottingham plant, producing steering gear.
- Johnson Controls, seat assembly plant in Burton-on-Trent: *“judged on QCD and overall capability to manage.”*
- Denso, Telford, moulding and assembly of heater units: same point as for JCA, above.

The Perkins Engines plant in Peterborough, and Corus’ steel plant at Port Talbot/Llanwern were the only other UK-based firms mentioned.

### 8.3.2 Opinions of the 1st tiers

Six 1st tiers noted various best practice firms, who were evidently all (or mainly) their suppliers. They included some Midlands firms as well as others that were considerably further afield, including the US and Far East. A US supplier of electronics management systems, IOGLLC, was reportedly: *“Very responsive to schedule changes etc.”* Firms in the Far East comprised Onpress, a Chinese manufacturer of laminate boards for electronics (printed circuit boards), and SJM, a South Korean producer of flex or decouplers for exhaust downpipes. The only specifically European firm mentioned was Tubificio, an Italian stainless steel tube manufacturer, though European plants of multinationals Trelleborg and Oetiker were probably among their overseas plants.

Midlands firms included:

- AC Coatings, Birmingham powder coatings supplier.
- Edwards Precision Engineering, Birmingham: *“Can respond within 24 hours. Is good quality.”*
- Hella, a Midlands machine tools supplier for JCB equipment: *“Can deliver on time,”* and
- TPM of Telford, a mouldings supplier: *“May not be best practice but they do very well.”*

Yorkshire-based Sertec was the only other UK plant mentioned.

### 8.3.3 Opinions of the SMEs

#### (i) Best practice firms

Most of the best practice firms highlighted by the 5 SMEs were their customers, and most (perhaps all) were based in the UK. Only one (Gripple) was a supplier. These firms included some huge aerospace and engineering companies (Rolls-Royce, BAe and Pratt and Whitney) as well as a vehicle manufacturer (Toyota). Both Pratt and Whitney and Toyota were singled out for their exemplary working practices.

Midlands best practice firms included:

- Siemens VDO, Birmingham: *“demands highest level of customer service from supplier”.*
- Rolls-Royce, Derby.
- Toyota, Derby.

Other UK firms included Perkins Engines, Hilex Cable Systems of South Wales, Delphi of Gloucester, and BAe. Gripple of Sheffield (a supplier of a clip for joining wires together) was singled out for its working practices.

#### (ii) Key competitors

Firms which could not identify any best practice firms mentioned some key competitors (one SME mentioned both). These firms competed on various fronts:

- Higher volumes.
- Cheaper price.
- Nearer to customers.
- Service offered to customers.
- Quality, efficiency, and automation.

Only one Midlands-based firm was mentioned – the fastenings distributor, Infast, also UK-wide. This company was cited by a forgings SME because they offered the same kind of direct line service that the SME was due to commence.

The only other named firm based in the UK was the Austrian gearbox and brakes supplier, Miba Tyzack, whose components were directly comparable with those of a Midlands SME, but were produced in larger volumes. Other firms located in Germany, South Korea and Taiwan were also identified as key competitors by this SME because they were either nearer to their customers than was the SME, or they could produce components more cheaply.

UK-based plants of German firms, and firms actually located in Germany, were key competitors for an SME injection moulder in relation to producing mouldings for Ford and other vehicle manufacturers.

The Japanese firm, Osaka Rashi, was mentioned by the SME forgings company due to the Far East firm's: *“Impeccable process flow through the works (with a) fully automated materials lab using, for example, FMEA analysis to ensure the product was fit for purpose.”*

#### 8.4 Comparing local suppliers with the best practice firms

Both vehicle manufacturers and 1st tiers were asked how their locally based suppliers compared with these best practice exemplars. An outline of their responses is given in Table 8.2, overleaf. Among the 5 vehicle manufacturers and 6 1st tiers that were able to give their opinions:

- The results are rather damning, as numerous deficiencies were identified, and even where good practice was identified reservations were still expressed.

Looking more closely at the opinions they held, key issues about locally based suppliers were:

- The lower quality of their products and components (4 firms), and/or their limitations in carrying out quality checks and process surveillance (2), points raised by vehicle manufacturers only.
- Their inability to meet delivery deadlines (4 firms), this being mainly an issue for vehicle manufacturers.
- A less professional approach or lower managerial ability was evident (4 firms).
- They were less focused on their customer, or their customer service was poorer (3 firms).
- They were less proactive in relation to implementing best practice or continuous improvement (3 firms).
- Although 3 firms thought that some locally based suppliers did good work and/or were reliable, there were uncertainties about their financial soundness, or they were considered to be more pricey than suppliers overseas.

**Table 8.2: Comparison of locally based suppliers with best practice firms.**

Opinions relating to specific criteria	Number of firms expressing an opinion		
	VMs	1stTiers	TOTAL
Lower product quality/more defects	4	-	4
Limitations re quality control/process surveillance	2	-	2
Substandard delivery/ability to meet deadlines	3	1	4
Problem solving skills are worse	2	-	2
Lesser ability for self-assessment	1	-	1
Less proactive re attaining best practice/continuous improvement	3	-	3
Overcapacity forces lower standard	1	-	1
Small size limits ability to implement best practice	1	-	1
Problems operating in foreign languages/multi-culturally	1	-	1
Financial problems	1	-	1
Specialist [engineering] capabilities are less	1	1	2
Lower professional approach/management ability	3	1	4
Customer focus/service is poorer	1	2	3
Not investing enough in technology/technological advances	-	1	1
Not investing enough in training/development	-	1	1
Too focused on cutting costs/lean manning levels	-	1	1
Prices are higher	-	2	2
General room for improvement	-	1	1
Some compare very well/do good work, but...	1	2	3
Can't say/not applicable	-	2	2
No response	2	3	5

Cases: 7 vehicle manufacturers, 11 1st tiers.  
Multiple responses were possible.

#### 8.4.1 Vehicle manufacturers' opinions of their locally based suppliers

Issues about lesser quality and delivery capability were prominent among the vehicle manufacturers that gave an opinion about locally based suppliers. *"They are way below,"* said an overseas owned firm: *"Their delivery performance is substandard. They have a lot of quality problems."*

One firm that had no locally based suppliers was dismissive of the potential ability of local firms to meet their exacting standards, but acknowledged that even most of their own suppliers (who were mainly in Europe) could not do so either:

*"We must have products delivered at less than 100 parts per million defects (this equals one defect in 10,000 parts). 85% of our suppliers can't deliver to this standard. We would be happy to buy locally if they could achieve this but they have attainments in the thousands per million."*

Two firms particularly pointed to the lesser attention to process surveillance or quality controls than they would like in their locally based suppliers, one linking this to deficiencies in self assessment and the continuous improvement philosophy, saying:

*"In many cases UK suppliers have lost the possibility to be professional in their general approach. They are behind on process surveillance – what is checked, how checked, i.e. key quality control aspects – and self assessment. A culture of 'if it's not broken don't try and fix it' prevails instead of a culture of continuous improvement."*

Mindful of the obstacles between customer and supplier, this firm also commented:

*"Promoting mutual trust between customers (vehicle manufacturers) and suppliers would be a powerful training programme."*

But they did not offer any thoughts on how this should be achieved.

Giving support to suppliers on problem solving was undertaken by another vehicle manufacturer to help them clarify where problems lie, in an effort to improve their quality and delivery. They thought suppliers' worst area was in relation to problem solving skills.

The ability of personnel was found wanting, particularly for quality managers, project managers and engineers. *"Project managers can't manage"* they stated bluntly.

Another thought that the extent of their proactive approach to best practice depended on the size of their business, implying that it was more difficult the smaller the supplier, but still holding the view that: *"All should be implementing it."*

Musing on the reasons why suppliers could not attain the quality they required, one observed that they rarely saw manufacturers at quality circles, and there was very little representation locally at Midlands Excellence or quality forums. *"They question is – why? We don't know why,"* they answered, speculating: *"Is there an issue about their management rigour?"*

Overcapacity due to the vehicle manufacturer's increased demand was the reason for suppliers' substandard delivery and quality, according to another respondent. They acknowledged their own culpability in relation to a good local supplier they named, saying: *"So we are forcing a pretty good supplier not to do well."* Financial implications were also raised; and another of their suppliers was said to be bankrupt.

Another issue raised about meeting customer expectations was with regard to operating in a foreign language for overseas plants, supplying all documentation including invoices and paperwork for shopfloor processes in the customer's language rather than (as they wanted to) in English. They asserted: *"UK suppliers struggle with anything that is multi-cultural and foreign and have difficulty in adopting a global view."* They would get more business with overseas and multi-cultural firms (even those based in the UK) if they were competent in their customer's language.

#### 8.4.2 1st tier opinions of their locally based suppliers

Of the 1st tiers that provided an opinion, all but one were larger than their suppliers. A wiring harnesses 1st tier's components supplier, though, was a very large firm whose customer service was described as: *"Abysmal"* because *"They tell you when you are going to get the parts."* They were said to be: *"not very nice to small firms,"* who they viewed as *"Insignificant."*

Among other 1st tiers, criticism of their locally based suppliers' lesser ability to meet tight delivery targets was only mentioned by one – an engines manufacturer.

For an exhaust systems 1st tier the underlying reason was the lean workforce levels of their suppliers and the lack of specialist skills, and limited investment in training through suppliers' cost cuts. It was their view that lower tier suppliers had misunderstood what 'lean manufacture' is all about, and so they were not investing enough in either new technology or in their people:

*"Most UK companies are not investing in technology and technological advances. They are more keen to focus on cutting costs through headcount and investment to reduce costs than investing in their people and systems...There is not enough investment in skills/training at management level. It is driven by cost pressure...So they would rather cut costs by cutting training first. But you have to spend something to get something back. They have got it the wrong way round. They see lean as low on an operations management level and light on investment, to cut costs. This is the wrong way around. Lean is not lean on people and low on investment. Lean manufacture is about investing in people and getting the best out of people and systems. Managers in 2nd tier firms cover 2, 3 or 4 specialist areas that they don't understand enough about. There are very few specialists in 2nd tiers because they have reduced their headcount so much."*

Two 1st tiers – of electronics and powertrain components – were quite positive about their locally based suppliers. *"They compare well"* said one, singling out their East Midlands supplier of circuit boards. *"They are very good because they can respond very quickly, within 24 hours, and achieve good quality in a fast time,"* said another about a Birmingham supplier of precision engineering, and a Yorkshire supplier. But both of these 1st tiers said that their good local suppliers were more pricey. The electronics 1st tier admitted: *"What's beaten them is price. This is significant. If it wasn't we wouldn't go offshore. There is a difference of £1 for each laminate board and this is significant."*

## 8.5 Expectations in relation to certain key criteria

Vehicle manufacturers were asked to rate their 1st tiers and, separately, their lower tier SMEs, to indicate the level of their expectations of suppliers in relation to certain key criteria comprising different elements of best practice. Similarly, 1st tiers were asked to provide a rating of their expectations of their own SME suppliers, while the SMEs were asked to use these same criteria to rate themselves against best practice exemplars in their industry or activity, or (if they did not know any) their key competitors.

One vehicle manufacturer was able to give an opinion of their 1st tier suppliers, but not of the lower tiers because they did not consider that these were their own responsibility, saying: *"We expect our 1st tiers to manage the supply chain below them."*

The key criteria they were specifically asked to rate suppliers against were:

- Quality, Cost and Delivery (QCD).
- Customer service.
- Design expertise.
- Development collaboration.
- The use of e-business.
- Problem solving/rectification.
- Project management ability.
- International experience, and
- Adaptation/flexibility/mirroring the changes that the customer makes.

They were also invited to specify any other criteria they considered important, and a few firms contributed additional points, including:

- Lean manufacture/principles.
- 6 Sigma.
- Environmental management capability.
- Quick responsiveness.
- Working towards TS 16949 (see section 8.5.10 and Text Box 8.1, later, for a complete list of the additional points).

These key criteria are discussed in turn below, juxtaposing in Figures 8.1 – 8.9 the responses of vehicle manufacturers, 1st tiers and SMEs in order to illustrate the differences between their individual expectations. Some startling contrasts are revealed, and one major conclusion is inescapable, namely that:

- There is a substantial gap between what customers among the vehicle manufacturers and 1st tiers want, and what the SME suppliers (most particularly) believe they have the competences to provide.

But also:

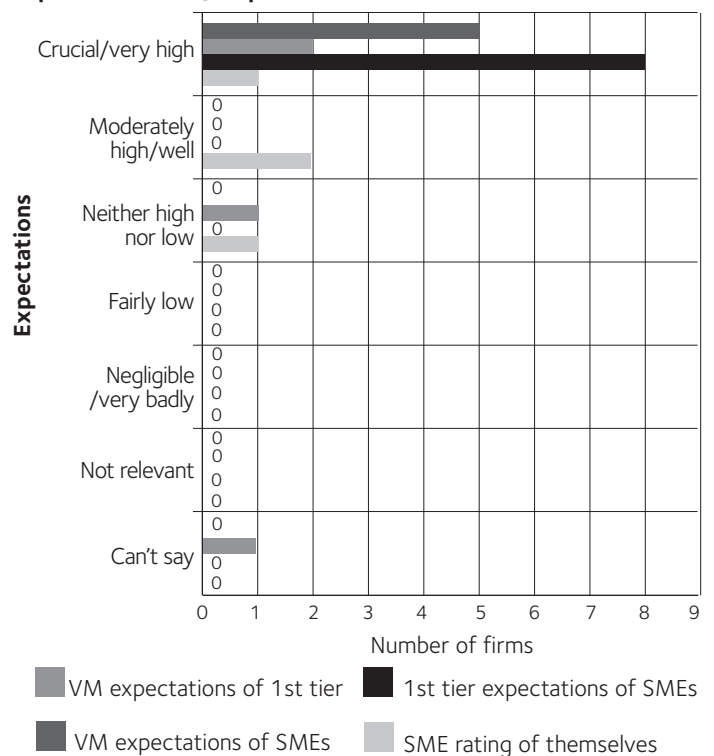
- The 1st tiers are some way off completely fulfilling vehicle manufacturers' expectations.
- For certain criteria, notably QCD performance, customer service, design expertise, project management ability, and international experience, both the vehicle manufacturers and 1st tiers generally had higher expectations of their direct suppliers than the SMEs did of their own competences.
- The vehicle manufacturers generally also had somewhat higher levels of expectations for their 1st tiers than they did of the SMEs.
- An important exception concerned development collaboration, where the expectations of the vehicle manufacturers, 1st tiers and SMEs were more in balance.
- The lowest levels of expectations were expressed in relation to the use of e-business.

### 8.5.1 Expectations of QCD performance

The vehicle manufacturers shared very high expectations of their 1st tiers' Quality, Cost and Delivery performance, as did the 1st tiers of their own suppliers (SMEs), but one of the vehicle manufacturers had middling expectations of the SMEs, while the SMEs' opinions on their own QCD competences were also mixed, though generally quite positive (see Figure 8.1).

**Figure 8.1: Expectations of Quality, Cost and Delivery performance.**

#### Expectations of QCD performance



Cases: 5 vehicle manufacturers, 8 1st tiers, 5 SMEs.

Various points were raised by survey participants, mainly about issues regarding quality and delivery rather than cost.

#### (i) Vehicle manufacturers' opinions

Rightly, a vehicle manufacturer linked QCD performance to problem solving and rectification. Another commented that they stopped if QCD was poor and monitored supplier performance in these areas both in the 1st tier and lower tiers.

Two other vehicle manufacturers took the opportunity to raise specific problems. One was clearly irritated that their: "Suppliers can't fill in paperwork right. Can't deliver what's on their manifest," and asserted that also: "Inventory management is an issue for suppliers."

Another was also very concerned about delivery problems, not among their 1st tiers, but in relation to their suppliers. Interestingly, they had taken the reluctant decision to get

personally involved with the lower supply chain in order to try and resolve the difficulties:

*“We have no problems with the 1st tier but for our SMEs delivery can be 3 – 4 weeks late. Not sure whether it is the supplier issue or whether issue is the marketplace. We think we give enough lead time (5 months, whereas the average for other companies is 3 months). In the last few months we have had to get involved with SMEs to try and resolve problems. We don’t like to do this but we had to.”*

**(ii) 1st tiers’ opinions**

Only two comments were voiced, and both of these emphasized how crucial it was that the SMEs met their customers’ exacting performance requirements. A powertrain 1st tier stated that these were:

- Quality – zero parts per million defects (PPM).
- Cost – 2% year on year [reduction] minimum.
- Delivery – 100% on time.

An exhaust systems 1st tier supplier described QCD deliverables as: *“entry level characteristics”* for their industry.

**(iii) SMEs’ opinions**

As we saw in Figure 8.1, the SMEs had a generally positive opinion of their own QCD competences, so it is perhaps no surprise that the only comments voiced by any SMEs were on the attack. *“We are as good as anyone,”* said a machining and fabrications SME, while an East Midlands sheet metalworker, although not supplying any ratings for any of these competences, was aware that sometimes they made components that were actually better quality than the customer was asking for (but note that this firm sold direct to the public).

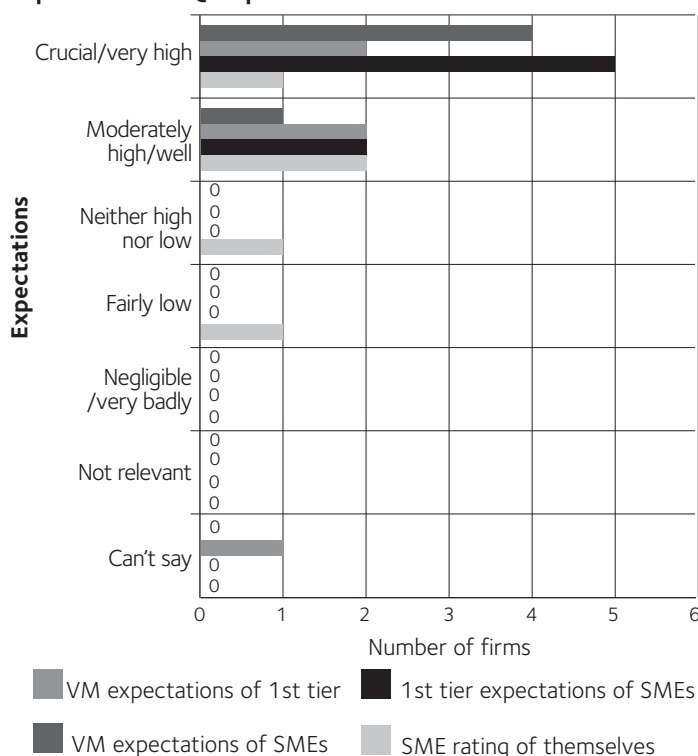
**8.5.2 Expectations of customer service**

As Figure 8.2 (overleaf) illustrates:

- The ratings that the SMEs gave to their own customer service were generally considerably lower than the vehicle manufacturers’ expectations of their 1st tiers and SME suppliers.

Whereas 5 of the 1st tiers were concerned to receive a very high level of customer service, only one SME gave their company a top rating in this respect.

**Figure 8.2: Expectations of customer service. Expectations of QCD performance**



Cases: 5 vehicle manufacturers, 7 1st tiers, 5 SMEs.

**(i) Vehicle manufacturers’ opinions**

The vehicle manufacturer that monitored supplier QCD performance also monitored their customer service provision as well. Another vehicle manufacturer highlighted the need for customer and 1st tier suppliers to have a good relationship and to be proactive in providing a good service, adding: *“This is essential for mutual goals.”* They also commented that a high level of customer service from the SMEs was *“vital.”*

**(ii) 1st tiers' opinions**

According to an air conditioning systems 1st tier, customer service was an aspect of all these key criteria combined, and they did not give it a separate rating. If they had, it would probably have been a top rating. An exhaust systems 1st tier, though, did comment about the relationship between the 1st tiers and their SMEs saying: *"It is paramount in the automotive industry that promises are kept and aspirations are met."*

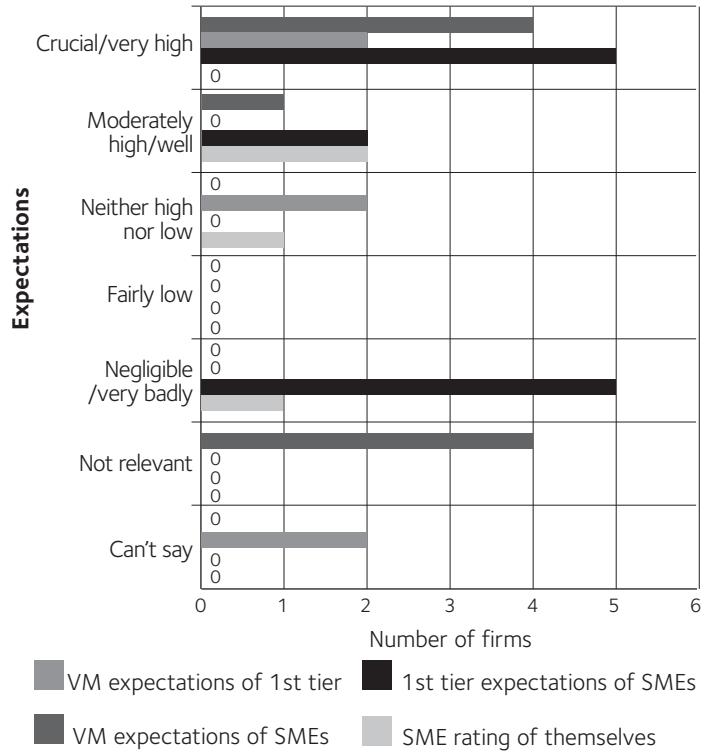
**(iii) SMEs' opinions**

SMEs made no comment, but their ratings speak for themselves: only one scored themselves highly on their customer service provision. Another two thought they did moderately well. A fourth clearly thought they were middling, while the fifth respondent rated themselves as 'fairly low' in this area.

**8.5.3 Expectations of design expertise**

Not all companies had design responsibility. For certain overseas-owned firms among the vehicle manufacturers and 1st tiers, for example, the design function was located at another plant, in some cases overseas. But even among those vehicle manufacturers and 1st tiers for whom it was a relevant question, expectations of design expertise in their suppliers tended to be moderately high rather than very high. Interestingly, one vehicle manufacturer did have high expectations of the SMEs in their supply chain, too. Looking at the ratings that SMEs gave to their own design expertise, though, although some thought they did moderately well, no SMEs rated themselves highly, and one thought that they performed very badly in this area (see Figure 8.3).

**Figure 8.3: Expectations of their design expertise.**  
Expectations of design expertise



Cases: 5 vehicle manufacturers, 8 1st tiers, 5 SMEs.

**(i) Vehicle manufacturers' opinions**

Comments were received from several vehicle manufacturers. One stated that they only sourced from 1st tiers that were competent in relation to design expertise. The importance of their 1st tiers' capabilities could increase if they required new developments, due to the very short development lead time they operated within. But they were not concerned about the design expertise in the lower tiers, saying: *"It is the tier one's responsibility."*

A second vehicle manufacturer wanted to see in their 1st tiers: *"The ability to question impracticality, propose new ideas and not simply follow."* The same comment was made about the lower tier SMEs in their supply chain. For another vehicle manufacturers, design expertise among their 1st tiers was linked to their proficiency in e-business because their priority was in: *"E-visualisation over the web, to share design information."*

**(ii) 1st tiers' opinions**

Very few comments were voiced by the 1st tiers about their own suppliers. One 1st tier did reveal that their local suppliers did no design work, as such, and this is probably a frequent scenario among 1st tier – local SME relationships. Certainly, another comment received – by an exhaust systems 1st tier – was along these lines, for the 1st tier asserted that they were responsible for systems and component design, but: *“Sometimes we require assistance from the supplier to modify a design or have their input on the development of the process.”*

**(iii) SMEs' opinions**

The SMEs reinforced the perception that design is generally the province of the 1st tiers, and their role (if they had one at all) was to assist the 1st tier. At least 2 of the 5 had no in-house design capability, one pointing out that they were a lot smaller than the 1st tiers, and had few technical resources. An exception was an East Midlands sheet metalworker who provided no rating for their own competence but commented that: *“We design in quality and style and elements which are difficult to copy.”* They did not supply to the 1st tier, but direct to the public, so were concerned about their designs being pirated.

**8.5.4 Expectations of development collaboration**

The vehicle manufacturers were much more likely to view the 1st tiers' development collaboration as crucial than the 1st tiers considered their SMEs' proficiency in this area. Meanwhile, the SMEs were much more in balance with the 1st tiers in relation to their development collaboration than they were in terms of design proficiency (see Figure 8.4, overleaf).

**(i) Vehicle manufacturers' opinions**

The vehicle manufacturers had nothing new to say with regard to their 1st tiers but stressed points about development lead times being short and the need for a questioning approach from the 1st tier. Only one had a view on the SMEs in their lower supply chain, but stated that their development collaboration was: *“Important”*, adding: *“We must not neglect tier two.”*

**(ii) 1st tiers' opinions**

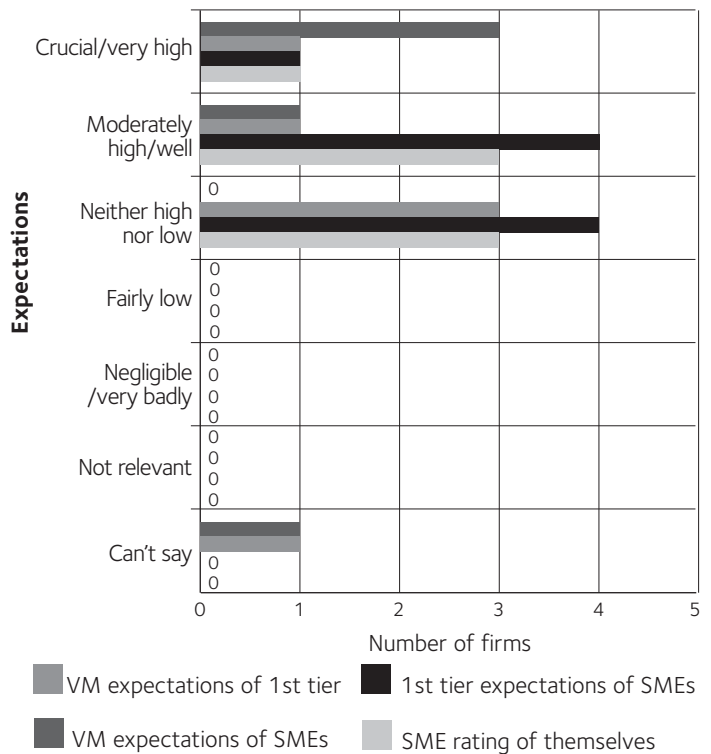
Both of the 1st tiers who offered a view on their suppliers' development collaboration raised the issue of cost. One – a powertrain 1st tier – highlighted their contribution in value analysis and value engineering (VAVE) in the design phase and was focused on the SME role in delivering this function at reduced cost. The other was also of the same viewpoint, and saw the competence of their SMEs in relation to development collaboration as increasingly crucial in order to:

*“Take cost out up front (rather than during manufacture when it is more costly to do so) and design a value for money product which is also capable and repeatable in production – getting the product right to start with than during production.”*

**(iii) SMEs' opinions**

No comments were voiced by the SMEs.

**Figure 8.4: Expectations of their development collaboration.**  
Expectations of development collaboration



Cases: 5 vehicle manufacturers, 8 1st tiers, 5 SMEs.

### 8.5.5 Expectations of the use of e-business

This competence introduced the broadest spectrum of expectations among all the criteria firms were asked to rate. The perhaps surprising fact that none of the vehicle manufacturers had very high expectations of their 1st tiers in relation to their use of e-business may indicate that, currently, other competences were uppermost in their requirements (see Figure 8.5, overleaf).

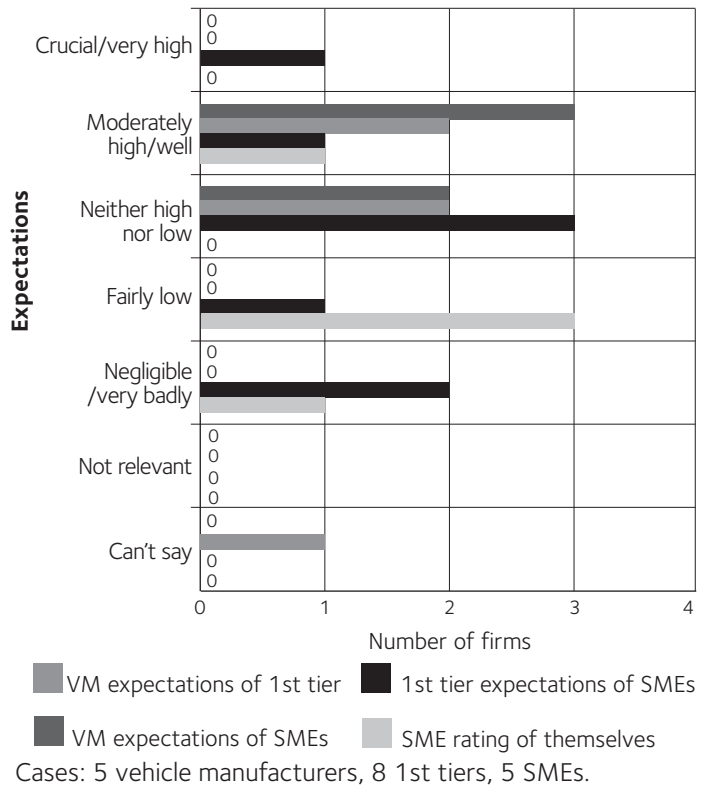
It is important to note that the SMEs were most negative about their use of e-business, all but one rating themselves either 'fairly low' or 'very badly' in this area of proficiency. Looking at the 1st tiers' expectations of them, there were mixed views, with one 1st tier holding very high expectations of their SMEs, another with moderately high expectations, but overall the 1st tier generally tended to have middling to low expectations of their SMEs' proficiency.

#### (i) Vehicle manufacturers' opinions

Electronic invoicing was among major considerations for two vehicle manufacturers with regard to their 1st tier suppliers. One of these firms was also interested in exchanging information, particularly in sharing design information and doing e-visualisations. They commented that 1st tiers needed a browser to do this, evidently aware of some deficiencies in e-resources.

A third vehicle manufacturer considered that e-business was not essential but posed: "A long-term efficiency question" regarding their 1st tiers. Concerning the lower supply chain, this same vehicle manufacturer observed that the use of e-business was: "A higher priority for smaller units working with a potentially diverse client base."

**Figure 8.5: Expectations of the use of e-business.**  
Expectations of the use of e-business



#### (ii) 1st tiers' opinions

Two of the comments voiced by 1st tiers indicate the importance of electronic means of communication when operating at long distance. The electronics 1st tier commented about CAD data and design specifications to manufacture printed circuit board electronics being sent to their specialist suppliers via the web for them to make, describing this as: "Essential."

The exhaust systems 1st tier advised that the second tier need to invest to keep abreast of the 1st tiers and vehicle manufacturers, highlighting video conferencing and materials resource planning (MRP) systems. They observed that:

*"Within the 1st tier and OEM relationships video conferencing and MRP systems are commonplace but the 2nd tier need to invest in their systems and keep pace with the 1st tier and OEMs. But there are always ways to do business without these tools, though it is more difficult, e.g. if you are meeting with*

someone far away/overseas it is less time and cost to use video conferencing than to travel to a meeting.”

A third 1st tier (air conditioning systems) singled out logistics via the web, as well as project management and quote management, all being areas which they would like to develop.

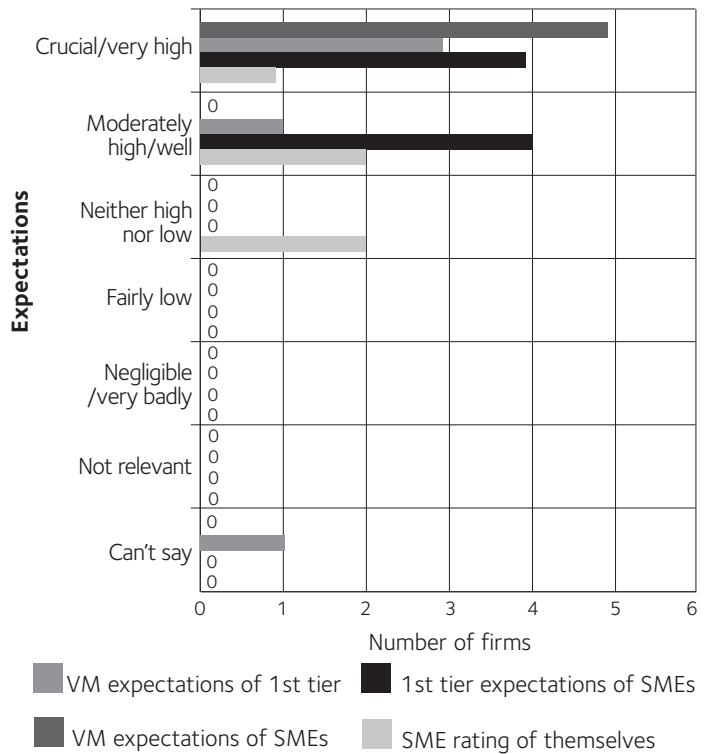
**(iii) SMEs’ opinions**

The SMEs hardly had any comments to make, though the prevalence of negative ratings about their own competences speaks for itself. A discs for gearboxes SME indicated that they “very badly” needed to develop their proficiency in e-business currently.

**8.5.6 Expectations of problem solving and rectification**

Vehicle manufacturers clearly considered it crucial that their 1st tiers were highly competent in problem solving and rectification. They were almost as adamant about its importance in relation to their lower supply chains (see Figure 8.6). The lower down the supply chain, though, the weaker was the expectation. While half of the 1st tiers had very high expectations of their SME suppliers the remaining half only had moderately high expectations. This compared with the SMEs themselves, who rated their own competences generally only middling or moderately high, and only one rated their own proficiency as very high.

**Figure 8.6: Expectations of problem solving and rectification.**  
Expectations of problem solving/rectification



Cases: 5 vehicle manufacturers, 8 1st tiers, 5 SMEs.

**(i) Vehicle manufacturers’ opinions**

The vehicle manufacturers had little comment to make, other than emphasizing that problem solving and rectification skills were “key skills” or “vital.” One linked this competence with 1st tiers’ project management capability, another with their QCD performance.

**(ii) 1st tiers’ opinions**

Five of the 1st tiers contributed their views on problem solving and rectification capabilities among their lower tier SMEs, two stressing how “critical” or “essential” this was, and the glazing 1st tier observing: “Expertise must flow through the chain.”

The powertrain 1st tier stated that their requirement was for a response from the SME within 24 hours and the problem to be solved within 5 days. They spoke of the 8-D problem solving method (originating from Ford, they thought). This comprised a programme involving 8 stages or actions, such as define the problem, set up a team, etc. But they mused: *“Ford is on 12-D now.”*

According to the exhaust systems 1st tier their suppliers needed to invest more in training if they were to improve their effectiveness in this area, saying: *“Problem solving actions and poke yoke actions in manufacturing are essential from a quality perspective.”* They revealed that often they had to: *“Hand hold suppliers through a process”* rather than their suppliers finding out for themselves how to go about it.

**(iii) SMEs’ opinions**

The SMEs had no comment to make about their own problem solving competence.

**8.5.7 Expectations of flexibility and ability to mirror customer changes**

Again, differences were discernible between the vehicle manufacturers, 1st tiers and SMEs in relation to their expectations of being flexible and mirroring the changes that their customers made (see Figure 8.7, overleaf). The weight of opinion among the 1st tiers of their SMEs was particularly focused on moderately high expectations, with two having very high expectations, but although 3 of the SMEs thought they did very or moderately well in this regard, two more rated their abilities as ‘fairly low.’

Three of the 5 vehicle manufacturers indicated that it was crucial that their 1st tiers were flexible in being able to mirror the changes they made, and they were almost as adamant in this view about the SMEs.

**(i) Vehicle manufacturers’ opinions**

Little further comment was made by the vehicle manufacturers, but one observed the need for their 1st tiers to match their volume changes.

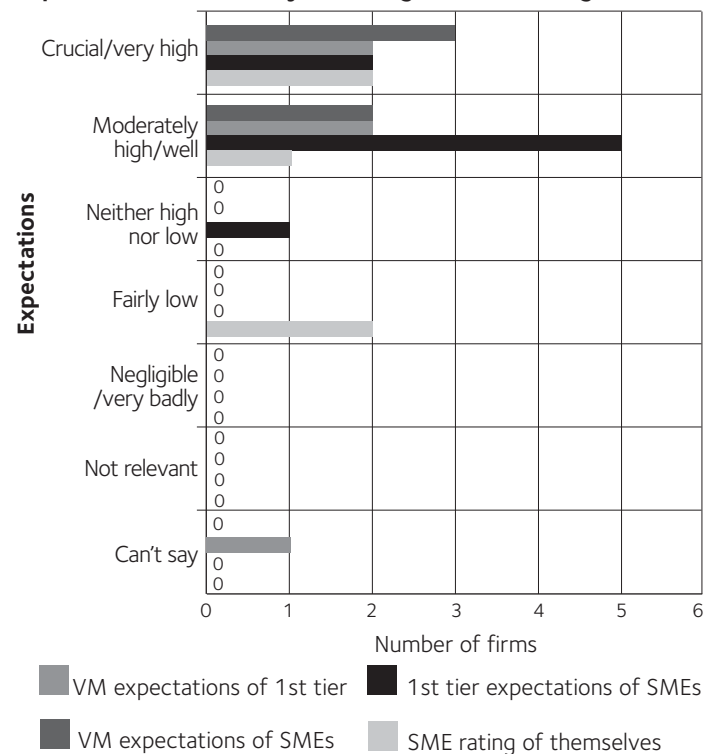
**(ii) 1st tiers’ opinions**

The need for SMEs to adapt when they themselves made

improvements in their production areas was specified by a powertrain 1st tier. A more strident theme, however, which reflected the point made among the vehicle manufacturers about the need for suppliers to match their volume changes, was that 3 1st tiers also highlighted this issue by emphasizing how vital it was for SMEs to be able to react to customer changes in demand. An air conditioning systems producer indicated that their SMEs had got it wrong in tending to hold high levels of inventory, saying:

*“Flexibility in production planning is important, and reaction to customer changes in demand, as we get to variance in what’s coming off platforms. So SMEs need to be very flexible and not based on high lot sizes. They may need to switch suddenly if variation is needed as part of the contract. This leads to short term production changes at short notice from the vehicle manufacturers. SMEs tend to pick from stock rather than manufacturing to demand. They need flexible manufacturing systems.”*

**Figure 8.7: Expectations of their flexibility, and ability to mirror customers’ changes.**  
Expectations of flexibility/mirroring customer change



Cases: 5 vehicle manufacturers, 8 1st tiers, 5 SMEs.

The exhaust systems 1st tier reiterated this view of the need for SMEs' flexibility in speaking of: "the goalposts continually changing in line with customer expectation." They asserted that: "Change is inevitable, so if we are going to compete globally we have to change and develop." They clearly did not believe that the SMEs could do this, stating: "This is a big challenge for the 2nd tiers as there is a big resistance to change there." Indeed, they warned of the consequences for the UK lower tier suppliers if they did not meet this challenge: "We will buy products from overseas if things/suppliers in the UK don't change." The reason for their inability to meet customer expectations was that: "UK suppliers are keeping track with quality systems but not with lean manufacturing principles." They were certain of what would happen if SMEs did not follow this advice: "If they don't invest in these then low cost countries will overtake them."

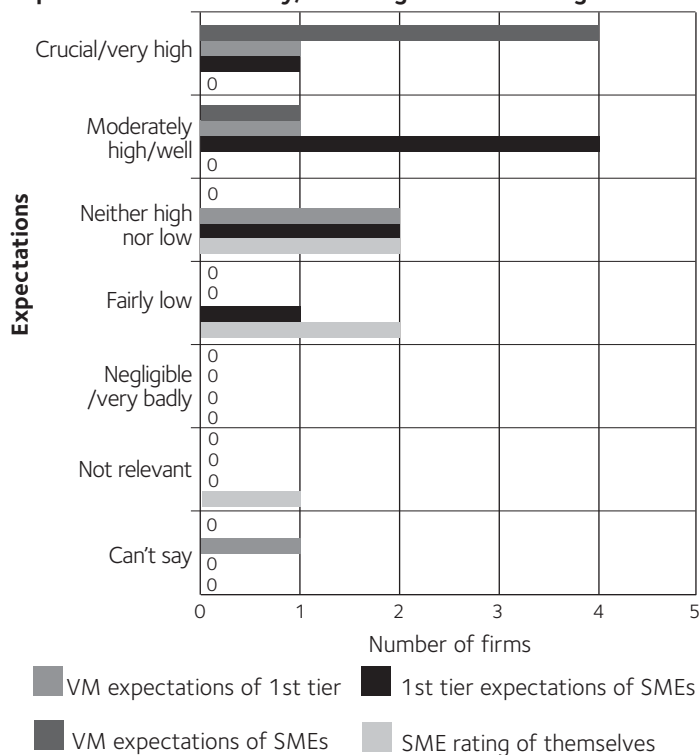
### (iii) SMEs' opinions

None of the SMEs expressed any opinion that took up this theme and mirrored the urgency of the message from their customer base. Indeed, the only SME to comment on their ability to mirror the changes that customers made was a small supplier of discs for gearboxes and brakes who thought they were very adaptable and flexible, being a small company, and that they were usually only called upon to be flexible in relation to design changes.

### 8.5.8 Expectations of their project management ability

The higher the level in the supply chain, the higher was the level of expectations about suppliers' project management ability (see Figure 8.8). Most of the vehicle manufacturers had very high expectations of their 1st tiers, and so did one of the 1st tiers concerning their own suppliers. The vehicle manufacturers also had high to middling expectations of the SMEs, like most 1st tiers, but nearly all the SMEs rated themselves as middling to fairly low in relation to their ability to project manage, indicating that they were frequently unable to meet the expectations of the 1st tier or vehicle manufacturers in this respect.

**Figure 8.8: Expectations of their project management ability. Expectations of flexibility/mirroring customer change**



Cases: 5 vehicle manufacturers, 8 1st tiers, 5 SMEs.

#### (i) Vehicle manufacturers' opinions

Project management, together with problem solving capabilities, were "key skills" in the view of one vehicle manufacturer. Another vehicle manufacturer, like them, rated this competence as crucial in their 1st tiers, but was dismissive of their suppliers' actual capabilities asserting: "We don't have people here who know how to project manage, both in-house and suppliers." Two other vehicle manufacturers took the view that project management was more of a tier 1 role than a lower tier responsibility, though one expected SMEs "in most cases" to support the 1st tier in project management.

#### (ii) 1st tiers' opinions

The views of certain vehicle manufacturers that project management was largely a 1st tier responsibility was shared by the glazing 1st tier, who had no comment to make about SMEs' competence in this area. Another 1st tier (powertrain) supplier pointed out the importance of the SME was in helping to

ensure that the 1st tier could meet their schedules so that they could in turn supply their customers on time. But the exhaust systems 1st tier took a stronger view, and saw that because the vehicle manufacturers' demands were increasing and project management requirements were ever more demanding, this had a knock-on effect onto the 2nd tier. They said of their suppliers:

*"More effort and resource must be plumbed in by all 2nd tiers in control plans, FMEA, PPAPs, 6 Sigma, and Advanced Production Quality Planning (APQP - for monitoring by the supplier technical assistant (STA) of supplier projects via a documentation checksheet)."*

### (iii) SMEs' opinions

The SMEs did not offer any specific comments about their own project management competence, but it is clear from the ratings shown in Figure 8.8 above that they did not hold a high opinion of their own skills in this area, and certainly lagged well behind the expectations of some of the vehicle manufacturers and 1st tiers.

### 8.5.9 Expectations of their international experience

Whereas the vehicle manufacturers had very or moderately high expectations of the ability of their 1st tiers to operate internationally, it was a little less of a concern that their SMEs could do this, but they were still positive or ambivalent about SMEs possessing international experience.

The 1st tiers, in contrast, were more mixed in their expectations of their SMEs, ranging from moderately high expectations that they should have international experience, to fairly low expectations, and one saying that it was not relevant.

SMEs own opinions of their international capabilities were generally negative, with 4 of the 5 respondents rating themselves either 'fairly low' or 'very bad' in this regard (see Figure 8.9).

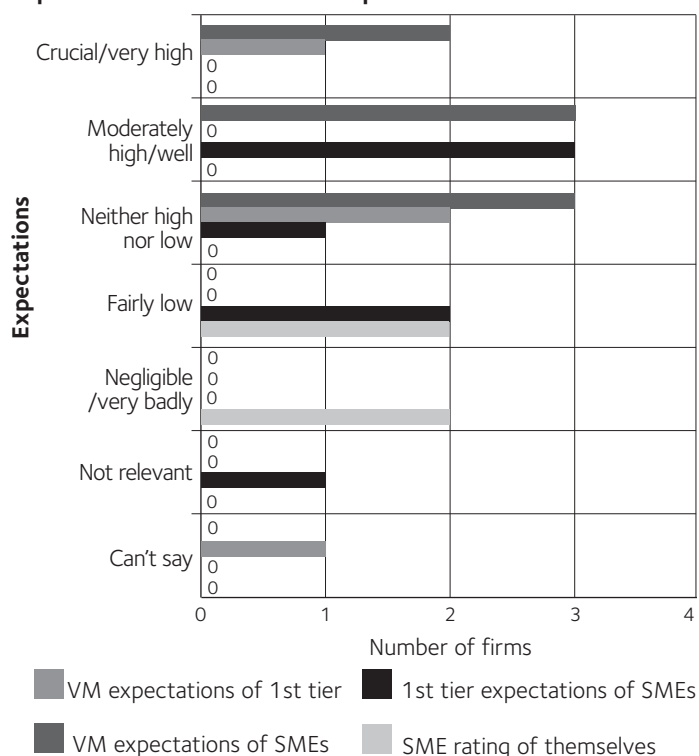
#### (i) Vehicle manufacturers' opinions

The only comments were made by the 3 vehicle manufacturers who held moderately high expectations of their 1st tiers. One pointed out that it was significant due to increasing cost competition. Another thought it was more important to their suppliers than to themselves, and the third stated that

international experience: *"Doesn't matter as long as service we get is good."*

The only comment about their SMEs by the vehicle manufacturers advised that a long-term plan was required by the SMEs, but believed that they were supported by their 1st tiers in most cases. There was nothing in the comments of the 1st tiers in this survey, however, to confirm this view.

**Figure 8.9: Expectations of their international experience.**  
Expectations of international experience



Cases: 5 vehicle manufacturers, 8 1st tiers, 5 SMEs.

#### (ii) 1st tiers' opinions

None of the 1st tiers stressed the importance of SMEs to have international experience. One indicated that this was their responsibility, saying: *"Having international experience is not of paramount importance as we remain responsible for the sourcing of production."*

Another 1st tier implied that it was up to SMEs to gain this experience, stating: *“It would be disappointing if the suppliers was not looking outside the UK to ways to improve their business.”* The glazing 1st tier considered that international experience was: *“helpful but not essential.”*

The 1st tier that considered it not relevant for SMEs to have international experience was dealing mainly with distributors rather than sourcing direct from overseas. They also had a very broad customer base by industry sector.

### (iii) SMEs’ opinions

The only comment made by any SME was by the discs for gearboxes supplier who indicated that there was an issue for them in gaining this experience due to their small size.

### 8.5.10 Other expectations

The invitation to add any other relevant criteria concerning their expectations of their suppliers prompted 9 firms to contribute further points (see Text Box 8.1). Some of these bore a close resemblance to existing criteria, but took a slightly different slant, such as the batteries 1st tier’s expectation of support from their suppliers on technology and supply, maintaining close links between them in order to understand market requirements.

Text Box 8.1: Additional expectations of supplier competences

Notes: All single cases except where indicated in brackets. All very high expectation (\*) or moderately high (\*\*) except where not rated (NR).

Vehicle manufacturers’ expectations of their 1st tiers:

- Change management.\*
- Mirror our ethics and values and do not treat their employees badly.\*\*
- Lean manufacture: One piece flow/Toyota Production System.\*
- 6 Sigma.\*
- Teamwork.\*

Vehicle manufacturers’ expectations of their SMEs:

- Very cost competitive.\*

- Lean manufacture: One piece flow/Toyota Production System.\*
- 6 Sigma.\*

1st tiers’ expectations of their SMEs:

- Working towards/possess TS 16949 (2 cases).\*\* NR
- Working towards/possess ISO 14001 (2 cases).\*\* NR
- Understand marketplace as we do, so can help 1st tier both re technology and supply availability: closely linked to 1st tier for market information.\*\*
- Ability to respond quickly.\*\*
- All can speak English.\*
- Lean manufacture/best practice in both quality of product and manufacturing expertise.\*

SMEs’ expectations of their own competences:

- Good attendance and time-keeping as no sick pay for days off.\*

Cases: 3 vehicle manufacturers, 5 1st tiers, 1 SME.

Quality Cost Delivery (QCD) criteria were rated very highly, also lean manufacture, which appeared among the vehicle manufacturers and 1st tiers but not the SMEs.

### (i) Vehicle manufacturers’ opinions

In addition to manufacturing quality and best practice – lean manufacture and 6 Sigma, which were also highlighted for their lower tiers – vehicle manufacturers added ‘teamwork’ to the list of crucial expectations they had of their 1st tiers. The Toyota Production System was advocated by a non-Toyota company which also mentioned Professor Dan Jones. The fast pace of change and the need for speedy responsiveness was surely behind the addition of ‘change management.’

A benevolence which stands out as a surprise among the wealth of practical concerns was expressed by a West Midlands employer who wanted to see their 1st tier suppliers mirroring their own ethics and not treating their employees badly.

The need for lower tiers to be very cost competitive was an additional factor mindful that this is a must if SMEs are to win business in a very competitive market.

### (ii) 1st tiers' opinions

QCD issues and lean manufacture were also evident in the 1st tiers' expectations of their own suppliers. Their reappearance can only signify a profound concern about the quick change responses and high level performance that SMEs must attain.

The need was raised for SMEs to possess TS 16949. The powertrain 1st tier's minimum requirement was QS 9001/2000 but they were encouraging suppliers to move to the new system.

The need for SMEs to possess the environmental standard, ISO 14001, was also mentioned. The air conditioning systems 1st tier singled out end of vehicle life (ELV) legislation as well as volatile organic compounds (VOC) legislation (at the draft stage and expected soon), advising that SMEs must prepare themselves for this: *"Government control will be higher. SMEs need to be more aware of and understand the impact and do the activity their side."*

**Table 8.3: Views on what their suppliers need to do to embody best practice**

Views on what suppliers need to do to embody best practice	Number of firms
<b>Vehicle manufacturers' views on the 1st tier:</b>	
Understand our business and our market/our needs and requirements	2
Be flexible in their approach, due to volume fluctuation re market changes	1
Be supportive by delivering on time and to best quality	1
Know how to make parts consistently and quickly: standard and repeatable	1
Practical problem solving skills	1
Project management ability	1
Lean manufacture	1
6 Sigma	1
<b>1st tiers' views on their lower tier suppliers:</b>	
Understand our business and be part of it: partnership	1
Understand lean manufacture philosophy better and how to implement it	3
Do further training on lean/ invest in training people, so to implement lean	2
Proactive in preventing problems happening in component production	1
Problem solving skills	1
Take responsibility for developing components	1
Support 1st tier re technology and flexibility required	1
Be nimble enough to switch manfr. when VM produces vehicle variant	1
Stop producing to stock so can achieve necessary flexible manufacture	1
Support 1st tier by supplying deliveries quickly	1
Need to be aware of TS 16949 + its additional quality/process requirements	1
Need better communication skills	1

### (iii) SMEs' opinions

None of these concerns appeared among the SMEs. Although they were also free to contribute further points, the only one to do this was the machining and fabrications SME whose expectation of their own company was focused on the need for reliability and hard work by their employees. They had stopped giving sick pay for odd days off in an effort to achieve good attendance and timekeeping. It is important, though, to note that other firms at all levels had earlier expressed the importance of the work ethic, particularly pointing to their shopfloor.

### 8.6 Skill needs for best practice in the local supply chain

Vehicle manufacturers and 1st tiers were asked what their locally based suppliers needed to do to embody best practice, and what skills were required. Although no new points were introduced, the opportunity was taken by some to emphasize where their priorities lay. Their responses are set out in Table 8.3.

Cases: 3 vehicle manufacturers, 8 1st tiers. Multiple responses were possible.

### 8.6.1 Vehicle manufacturers' views on 1st tiers' best practice skill needs

It is important to be aware that:

- Vehicle manufacturers' requirements from the 1st tiers were not dissimilar from what the 1st tiers wanted from their SMEs in relation to more support, reliable delivery, high quality, greater responsibility, and improved flexibility.

Two firms wanted their 1st tiers to understand their business and requirements, one pointing out that they needed also to understand the market environment. One said: *"If they do not understand they cannot meet them."* Neither went into any detail about how the 1st tiers should acquire this understanding, but they both linked this appreciation to better 1st tier support in meeting their delivery requirements. *"We'd like them to be flexible and support us in what we do: accept an order, deliver on time, and produce it to the best quality."* They also repeated that they needed flexibility from their suppliers due to the volume changes that could suddenly arise from changes in market demand, saying: *"We are a low volume manufacturer so orders can be feast or famine. It is difficult to maintain continuity so they need to be more flexible in their approach."* The other vehicle manufacturer stressed the importance of their 1st tier: *"Knowing how to consistently and quickly make parts (i.e. standard and repeatable)" and having: "Practical problem solving skills."*

A third vehicle manufacturer repeated their requirement for lean manufacture and 6 Sigma, and also highlighted project management skills. They pointed out that training was available for their 1st tiers.

### 8.6.2 1st tiers' views on SMEs' best practice skill needs

A few 1st tiers were especially forceful in pointing to the gap between their own needs and what they wanted from the lower tiers. Importantly, it was evident that:

- It was not just an issue about limited capabilities or resources, but some thought that many SMEs also displayed a lack of appreciation of what best practice entailed, and displayed a poor understanding of their customers' needs, as well as a reluctance to implement the necessary changes and, when they did, to keep this momentum going.

*"We want them to understand our business, be part of our business – in partnership"* stressed a glazing 1st tier.

An exhausts 1st tier singled out lean manufacture and the need for training, asserting:

*"The 2nd tiers require a better understanding of lean and how to implement it. They need to understand what best practice is. They think they understand this but they don't. They need to accept the philosophies of best practice and lean manufacture. They need to invest in trained personnel in order to implement the practical benefits of lean manufacture. If you haven't got skills in your company to understand and implement it then you can't even get off the ground. My suppliers are not investing in their shopfloor."*

Their view was shared by a powertrain 1st tier who had a supply chain programme, looking at needs and management structures, and had also done lean via Accelerate. *"Support like this is useful,"* they said. But they criticized certain suppliers for not going far enough with their learning about lean principles, saying: *"Some say they can't see the benefit of doing another lean course. There is more but they don't see this, e.g. doing lost time analysis (this is part of lean)."*

An air conditioning systems 1st tier again expressed concern that the predilection for picking from stock rather than manufacturing to demand meant that suppliers were not nimble enough. *"Suppliers just want a contract and manufacture to that contract"* they stated. But they pointed out that vehicle manufacturers needed flexibility, giving the Ford Mondeo as an example:

*"The Ford Mondeo has a number of variants and Ford can switch suddenly from producing one (e.g. direct injection) to another version (e.g. petrol injection) and, say, need a right or left hand component, and suppliers need to switch too. But the supplier is not nimble enough to switch quickly from manufacturing one variant to another. They like to manufacture to stock and pick from stock but they might have the wrong one in stock or even be left with that stock left on the shelf that they can't use."*

They also advised that their suppliers needed to take more responsibility for developing components to enable fewer problems to occur. Instead, they saw that: *"SMEs are doing this in a patchy way."* But they added: *"Vehicle manufacturers are not doing it. No-one is really doing it."* They linked this to lean manufacture and advanced quality planning, including a need for their lower tiers to be: *"Looking at components and*

problems we will get in manufacture and preventing those happening in the first place, e.g. by adding a second operation, redesigning tooling.” They saw this as a shared approach to reducing lead times.

Better communication was highlighted by a small 1st tier with very large suppliers like Tyco, who wanted firms like that to see them as equally significant as their big customers. They, too, needed support from their supplier in relation to speedy delivery: *“Because our customer might call us suddenly asking for an emergency delivery and we need to be able to supply it. So we need to get components quickly.”*

### 8.7 Variation in best practice expectations due to supplier differences

It was important to determine whether there was any variation in their expectations of their suppliers in relation to best practice, according to the differences between them such as production activity, technology or materials employed, their location, ownership or, indeed, any other factors.

The responses to this question provided by 11 firms indicated that:

- Some acknowledged that certain of their suppliers faced more problems than others, but nevertheless they expected to see all of them paying the same close attention to performing to the optimum standard and providing the same level of customer service.

Any differences in their expectations of their suppliers were due to:

- *Materials.*
- *Production processes.*
- *Technological complexity, or*
- *Bespoke design or technical specification.*

Vehicle manufacturers and 1st tiers acknowledged variation in their expectations as regards:

- The greater need for the highest standard among more advanced technology components – plastics, electronics and hydraulics – compared with lower tech supplies e.g. fabrications.

- Greater process risks in some processes e.g. rubber, compression moulding of plastics, forgings, castings.
- The greater complexity of some parts (e.g. bolt components) compared to others.
- Different expectations for electronic components designed in-house compared with those bought off-the-shelf.
- Better customer service and individual attention from small local engineering workshops regarding technical specifications, compared with purchasing off-the-shelf components from a large supplier (see Table 8.4, overleaf).

#### 8.7.1 Variation in expectations among the vehicle manufacturers

A vehicle manufacturer singled out bolt components with an alternator as particularly complex parts for their suppliers to produce. Even so, they expected them to meet the QCD targets laid down for all their suppliers though, to do so, they might have to work with some more closely for 2 years to achieve their targets than with other suppliers. They had: *“...an escalation process for dealing with problems. At level 3 the problem is put to director level. It defines who at every level gets involved with dealing with the problem.”* They added: *“We expect a high level of management competence in these companies. Qualified to do the job and professional and rigorous in their approach and conscientious.”* Doubtless it was the management direction consideration that prompted another vehicle manufacturer to say that they wanted to have support from a supplier’s head office (main plant).

Fabrication costs for a third vehicle manufacturer were reportedly high due to the volume of supply, but their key concern was that their plastics, electronics and electronics suppliers were really good, because these were higher tech components. They also assessed the performance of suppliers, including their strategic performance, and planned to deselect some of their 500 global suppliers on this basis imminently. Although they wanted their suppliers to share the same vision, they wanted to keep the relationship at arms length.

**«Table 8.4: Variation in firms’ best practice expectations of their suppliers in relation to differences in production activity, technology, materials, location, ownership etc.**

<b>Business activity</b>	<b>Whether variation in best practice expectations existed</b>
<b>Vehicle manufacturers’ views on their 1st tiers:</b>	
Vehicle manufacturer	Yes, there is variation as plastics, electronic and hydraulic suppliers need to be really good, but fabrication suppliers are technically lower level and less cost. Also an issue re performance including strategic.
Vehicle manufacturer	We expect same of all 1st tiers, including high level of management competence, but complex parts like bolt components may incur more problems. QCD problems may entail more support from us than for other 1st tiers.
Vehicle manufacturer	Their parent company/head office should provide support to us.
Vehicle manufacturer	No variation: same principles apply to all 1st tiers and SMEs.
<b>Vehicle manufacturers’ views on the lower tier suppliers:</b>	
Vehicle manufacturer	No variation: same principles apply to all, including 1st tier.
Vehicle manufacturer	We need professionalism and practical problem solving skills.
<b>1st tiers’ views on their lower tier suppliers:</b>	
Wiring harnesses	Smaller local engineering suppliers provide better customer service re meeting customers’ technical specifications than large firms where you buy off the shelf.
Powertrain	Our goal is same for all: zero PPM and no concerns. But suppliers in rubber, compression plastics mouldings, forgings, castings are more prone to problems. Not a UK, skills or technological issue, but due to inherent process risks.
Engines	Yes, re technology and materials. If they can suggest improvements/advances it adds value to our engineering design for us to deliver a better engine to the customer.
Air conditioning	We need no variation in best practice. Basics are project management, advanced quality planning and production control. Less important is design capability. Some technologies are less important to us.
Electronics	Connectors are bought off the shelf so can’t do anything about that. Different expectations if we are making a component to my design.
Exhausts	My expectations are global, not within the UK or regional.
Batteries	Can’t say. Only one real supplier, who smelts lead.

Cases: 4 vehicle manufacturers, 7 1st tiers. Multiple responses were possible.

Only two of the 4 vehicle manufacturers that gave an opinion had any comment to make about the lower tier SMEs. One stated that, as for their 1st tiers, their expectations were the same for all lower tier SMEs. The other also made no distinction between the SMEs, but reinforced the need for: *“Professionalism!”* as well as: *“Practical problem solving skills and knowing how to make quickly parts that are standard and repeatable.”*

### **8.7.2 Variation in expectations among the 1st tiers**

Two of the 1st tiers dealt with distributors as well as manufacturing suppliers. Both had different expectations for firms that they dealt with in relation to bespoke technical specifications, compared with components bought off-the-shelf. A wiring harnesses 1st tier commented about the small engineering workshop round the corner: *“We would need them to understand the technical specification of parts we need to supply to our customer.”* They were also able to provide a better service. A similar comparison was made by the electronics 1st tier who pointed out that they could not do anything about the connectors they bought off-the-shelf, but stated: *“If we are making a component to my design my expectations are different.”*

Design was not the important criterion for the air conditioning supplier though. For them: *“The basics are project management and advanced quality planning, and production control. These are key.”* They admitted that: *“Obviously certain technologies are less key for us than others.”* But they advised: *“We need no variation in best practice though.”*

The powertrain 1st tier stated firmly, too, that there was variation in their best practice expectations, saying:

*“Our goal for everyone is zero PPM and no concerns, so there should be no variation. But realistically we are aware that certain processes are more prone to problems: suppliers in rubber, plastics compression moulding (in Spain, but injection mouldings are OK), forgings, castings (not necessarily in UK).”*

Like the vehicle manufacturer who was aware of the inherent difficulties in the production of bolts for alternators, they did what they could to support them, saying: *“We work with suppliers to resolve and protect the risks in the process.”* They were quick to assure that it was not that these suppliers were less competent: *“Problems are not due to skills issues or not*

*using advanced technology but because of intrinsic factors in the processes.”*

### **8.7.3 Some further points about best practice**

Some highly pertinent points were raised by two 1st tiers who were concerned about the connotations of the term ‘best practice.’

An electronics 1st tier warned: *“We need to watch benchmarking and best practice terminology.”* They were clearly anxious about the potential added burden that would fall on their shoulders if there was no consensus about what denoted best practice.

They commented:

*“The issue is admin/time for keeping up with what customers want. If, say, Honda want best practice a certain way, and others want it other ways it would lead to lots of documentation and so more cost/time. This is a concern for us.”*

A real concern for the air conditioning 1st tier was the lack of understanding about best practice, and they saw a danger of this increasing:

*“Best practice is becoming a buzz word but the image of what it constitutes is becoming less clear. Best practice is a cliché. There is not an easy template to elucidate it, re standards etc. You can’t say “these elements would constitute ‘best in class.’” The Industry Forum elucidate what best practice is very well but I am not sure that other people do. In industry etc people think they know what best practice is, but young people use best practice as a cliché.”*

They had some advice about how to instil best practice principles through Government agency support and training institutions:

*“The way to embed best practice in industry is e.g. via Industry Forum/Route camp/Skills4Auto. There needs to be a mantra of best practice for graduates/trainees. Not sure it’s what they’re getting when they graduate. When the current 60s baby boomers leave there will be no-one who knows very much about best practice because those training now don’t do much on it. Best practice needs embedding in purchasing, quality, process, design engineering and in apprenticeships, where training is wider than it was.”*

### 8.8 SMEs' views on the advantages of best practice firms

Having identified what capabilities the vehicle manufacturers and 1st tiers wanted to see in their suppliers, it is useful to look now at what the SMEs had to say about best practice firms.

All but one of the 7 SMEs contributed an opinion on whether best practice firms (or their key competitors, if they did not identify any best practice firms) had any better skills than they did, or possessed any other advantages that they did not (see Table 8.5, overleaf).

Analysis of their comments shows that their best practice firms or key competitors were thought to possess certain superior knowledge and capabilities and other business advantages, notably:

- Their larger size gave them more income and people resources:
  - *The ability to recruit more people, and better experienced and qualified ones, including graduates, because they had*

**Table 8.5: Advantages or better skills that best practice firms or key competitors were thought to possess.**

The advantages or better skills of best practice firms or SMEs' key competitors	Number of firms
They are true global players	1
They are larger in size	3
They are well known, but we are only known locally	1
It is easier for them to get business	1
They have more income/make more profit	2
They are higher status than us	1
They have/can recruit more people	2
They can recruit better qualified and experienced people, inc. graduates	1
They can retain qualified and experienced people better than we can	1
They can pay higher salaries	1
They can offer a high career path	1
They have staff who deal only with one job, but we do multiple jobs	1
They are not overstretched, so are better organized and can meet deadlines	1
They can get jobs up and running more quickly than we do	1
They have larger premises	1
They have more control over their manufacture as they can do more in-house and have to subcontract less	1
They have more/better technological resources/equipment	3
They do inspection/analysis/testing equipment in-house, we subcontract it	1
They have better knowledge of engineering e.g. sheer and stress analysis	1

- more status and could pay better.*
- *Easier retention of the people they recruited.*
- *Greater organisational reliability because they were less stretched and people did not have to carry out multiple jobs at the same time.*
- *Having a larger size enabled them to win more business and make more profit.*
- *They were better able to afford to equip their plants with advanced technology.*
- They were better equipped with technological resources, so they were able to:
  - *Do more in-house manufacture, and subcontract less.*
  - *Do their own materials and engineering inspection, analysis and testing in-house, instead of subcontracting this to external engineering specialists.*
  - *Because they did in-house inspection, analysis and testing, they had a greater knowledge of engineering.*

Cases: 6 SMEs. Multiple responses were possible.

A small supplier of steel and friction lined discs for gearboxes and brakes pointed out that they would have to incur substantial cost, spending £500,000 on equipment and move into larger premises if they were to take some of their subcontracted work back to manufacture in-house. They were not willing to expend this outlay of £1 million in all. But they also had a succession issue as the Managing Director was nearing retirement.

Issues about limitations in human resources were raised by three SMEs. A tube components supplier was aware that the greater size and status of firms that were true global players, who were better known and could pay higher salaries gave them an advantage in recruiting and retaining experienced and well qualified people: *“People may come here but then would move on fairly soon because we can’t offer the same high career path.”*

A small injection moulder pointed out that it was difficult for them to win business because of their small size, but problematic to take people on because they didn’t get enough business to afford to recruit them. They were candid about their organisational limitations because people had to cover several jobs, unlike larger companies where one person dealt with just one job. *“So we are stretched or miss a deadline or forget to do something because something else has taken over what is going on.”*

Interestingly, they described this multi-tasking as: *“flexibility.”* The question springs to mind about whether there is a different definition among customers and some SMEs about flexibility.

Another SME, of machining and fabrications, also highlighted their organisational limitations, specifically the length of time they took to get a job up and running, saying: *“We can lose jobs while this is happening.”* They attributed the problem to the calibre and culture of their workforce: *“Our people lack the inventiveness to get it up and moving. It is a cultural thing in our company. We need to change.”*

Several firms spoke of their competitors’ or best practice firms’ possession of superior technological resources. A forgings company compared themselves to the Japanese, asserting that the culture of sending products outside to be tested, rather than doing this in-house like the Japanese did, meant that their knowledge of engineering was limited, notably with regard to sheer and stress analysis:

*“Their knowledge of engineering [is superior] with regards to sheer and stress analysis e.g. we can do tests but are not good at calculating this beforehand, nor all finite element analysis on our product range. So we are trying to calculate things like tensile strength (with MIRA) but the Japanese have technology/analysis/inspection/testing (e.g. spectrometers) in-house. We use Roadtec in the UK. There is a culture of sending products out to be tested so we don’t have engineering knowledge in-house and don’t have the equipment like the Japanese.”*

They raised the issue of affordability as a significant barrier to their resolution of this problem.

### **8.9 SMEs’ views on the changes that they needed to make**

Given the views expressed overall by the SMEs about the advantages or better skills that best practice firms or their key competitors possessed, what changes did they think they needed to make or in what ways did they need to improve, in order to compete more effectively?

Perhaps not surprisingly at the end of a lengthy interview, these firms had little more to add, but their rather sparse comments did cover a range of issues (see Text Box 8.2).

Text Box 8.2: Changes or improvements that SMEs thought they needed to make in order to compete more effectively

- Be more inventive.
- Invest in new technology.
- Cut waste and focus on lean manufacture.
- Offer more added value to their own employees.
- Offer a higher level of customer service, and more added value to customers.
- Focus on getting more customer sales.
- Locate funding to recruit an extra person and develop some new products.
- Develop internal information systems (2 cases).
- Upskill the whole workforce.

Cases: 6 SMEs. Note: single cases unless otherwise stated in brackets.

Two suppliers considered they ought to do more regarding their customers. An injection moulder stated: *"We need to get more focused on our customers."* But it was clearly not in the way that their customers might have looked for, since they added: *"It comes back to the sales side of things. We need to catch customers' attention."* For this firm, there was a question mark about whether they appreciated the implications of the term 'customer focus' in the way that the 1st tiers and vehicle manufacturers defined it.

In contrast, a tube components supplier exhibited a sound awareness of customer needs when they said: *"We need to cut waste, do lean manufacture, develop our information systems, offer a higher service to customers, and give increased added value to ourselves and customers."*

Two firms mentioned training, but only one – the forgings supplier – had any need for training. For them, upskilling the whole workforce, including their directors, was necessary.

The other firm to speak of training was the East Midlands-based injection moulder who was adamant that training was not what they needed. They were clearly irritated that they received telephone calls every day about training their staff, asserting: *"There are no courses for our industry and no local place for setters to train."* What they did need, however, was an extra person and some finance to develop some new products.

The analysis of best practice expectations undertaken in section 8 completes the evaluation of all survey responses on skill gaps and training issues in the automotive supply chain in the West and East Midlands. Section 9 now proceeds to draw out some conclusions and recommendations from the many points covered in the preceding analysis.