

SKILL GAPS IN THE AUTOMOTIVE SUPPLY CHAIN IN THE WEST AND EAST MIDLANDS 2005

CHANGING SKILL NEEDS

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5.1 Introduction

The previous section looked at what is driving changes in the competences that people need to do their jobs. That set the scene for the detailed analysis now undertaken of changing workforce competences, the ensuing inadequacies or gaps in relation to skills, where among senior management and the workforce they appear, and the underlying factors for tackling those limitations. Following some general points raised by survey participants about skill issues, the discussion is structured using the occupational breakdown set out in section 3.

5.2 Key issues for firms workforce-wide

The need for better leadership and management skills was highlighted across most workforce functions, since:

- Almost one quarter (6) of the survey participants considered that Directors and Senior Managers in their own companies had limited leadership skills.
- There was also increasing emphasis on the need for people at all levels to demonstrate strong leadership and management capabilities, including team leaders in Manufacturing Operations (i.e. the shopfloor), in order to take responsibility for driving changes to ensure more efficient and productive working (see Table 5.1 and Appendix 6).

The major concern, though, was that:

- Manufacturing Operators, as well as Technical, Engineering and Design personnel, possessed inadequate process skills (over half of all the surveyed firms raising this issue).

Keeping up with process changes was identified as a case for improvement among Sales people, too, but, for them, there was a range of specific concerns related to dealing with customers, issues like language skills, cultural knowledge and an understanding of overseas pricing and financial systems arising through contact overseas, in order to understand how to win business. Similar issues affected Purchasing, too, in global sourcing.

The need for improved team working skills was fairly prominent on the shopfloor due to cell operations. Team work was increasingly important, too, in Stores and Despatch to deal efficiently with the increased frequency of deliveries required by customers upping their Just-in-Time demands and

their more detailed documentation, labelling and packaging procedures. But limited team working skills were most marked among Directors and Senior Managers (11 firms citing this issue) due to their historical tendency towards the directive approach and/or their operation in functional silos. Recognition was growing of the crucial importance of possessing 'softer' skills, including communication and personal and relationship skills, enabling them to inspire the workforce to give 100% and to work smarter (similarly applying to Quality personnel), and building sound relationships with partners, customers and other stakeholders.

"We need better communication skills down the organization and in facilitating communication up the organization to facilitate co-operation and involvement" iterated a 1st tier powertrain components supplier, echoing a broader theme, adding: "People don't concentrate on how the messages are getting delivered and the softer issues of the way to move things forward. Instead, they are mechanical."

Communication skills were more important for Manufacturing Operators, too, when cell working brought customers to the plant to survey work in progress and they were expected to explain and reassure how production was proceeding on the customer's work in hand.

Inadequate IT skills were an issue in most occupational groups. In some cases this concerned straightforward IT and PC skills – notably among Senior Managers. In others, such as Technical and Engineering functions, it tended to relate to specialist advanced software for product design and computer simulation and transferring data (including drawings) to customers and suppliers. Data storage, ordering, invoicing and billing were also mentioned, affecting diverse occupations such as Stores and Despatch, Purchasing, and Finance and Administration. Limited IT skills were particularly significant on the shopfloor due to increasing automation, statistical process control, inspection techniques, and the recording and analysis of performance data. Several firms noted that they needed to install a more advanced IT system across the whole business, and this would have implications for upskilling the whole workforce. About one quarter (7) of those surveyed considered that their existing Systems and IT staff were limited in their existing skill base and commented on the difficulty they encountered in keeping up to speed with the welter of technological changes. One small firm evidently had not yet installed any IT capability, but planned to.

Resolving these workforce deficiencies was proving problematic as most firms were now so lean that was little or no slack to arrange cover and, as one firm pointed out: “When you take people off they don’t produce anything.” Lack of time to train particularly affected Technical, Design and Engineering personnel (10 firms), and to a lesser degree Manufacturing Operators, Quality, and Stores and Despatch (see Table 5.2 and Appendix 7). Upskilling older workers was a factor particularly for Manufacturing Operations. Problems were also met in finding suitable recruits when the labour pool had shrunk, and industry competed against higher waged options like retail. Locating people who could function well under pressure was more difficult, and it had severe repercussions on a company’s ability to compete.

Table 5.1: The incidence of skill gaps within vehicle manufacturers, 1st tiers and SMEs: the number of firms affected by gaps or limitations in the specified skills among the occupational groups listed

| Skills in which gaps could occur | Directors/ Snr Mgrs. | Manfr. Operators | Tech/Design /Engineering | Purchasing | Stores / Despatch | Quality | Systems & IT | Sales/ Marketing | Finance/ Admin | Human Resources | Training |
|---------------------------------------|-------------------------|---------------------|-----------------------------|------------|----------------------|---------|-----------------|---------------------|-------------------|--------------------|----------|
| Basic Skills | - | 8 | - | - | 4 | - | - | - | - | - | 1 |
| Health & Safety skills | 5 | 6 | 1 | - | 3 | - | - | 1 | - | 3 | - |
| Leadership skills | 6 | 5 | 1 | - | 2 | 3 | - | 2 | 1 | 4 | 1 |
| Management skills | 5 | 4 | 4 | - | - | 2 | 3 | 1 | 2 | 2 | 1 |
| Team working skills | 11 | 7 | 4 | 2 | 5 | 2 | 1 | 1 | 2 | 2 | 1 |
| Language skills | 7 | 1 | 1 | 3 | 1 | 1 | 2 | 5 | 2 | 1 | 1 |
| Communication skills | 6 | 6 | 4 | 2 | 1 | 3 | 2 | 1 | 3 | 4 | 3 |
| Personal & relationship skills | 8 | 4 | 1 | - | 1 | 2 | 2 | 1 | 2 | 3 | 1 |
| Customer contact & care skills | 2 | 1 | - | 1 | 3 | 2 | 2 | 3 | 1 | - | - |
| Business planning & dev. skills | 4 | 2 | 4 | 3 | - | 1 | - | 4 | 3 | 3 | 1 |
| Technical and design skills | 1 | 4 | 7 | 1 | - | 5 | 1 | 1 | - | - | 1 |
| IT and PC skills | 6 | 6 | 8 | 2 | 5 | 4 | 7 | - | 7 | 2 | 2 |
| Process, technical, production skills | 3 | 15 | 13 | 3 | 5 | 5 | 2 | 4 | 2 | 2 | 3 |
| Other skill gaps | 4 | 5 | 1 | 5 | 2 | 6 | 2 | 9 | 6 | 8 | 5 |

Note: a horizontal dash (-) is used in cases where no skill gaps were reported.

Table 5.2: Underlying factors for tackling skill gaps or limitations in each occupational group within vehicle manufacturers, 1st tiers and SMEs: the number of firms citing specific underlying factors.

| Skills in which gaps could occur | Directors/ Snr Mgrs. | Manfr. Operators | Tech/Design /Engineering | Purchasing | Stores / Despatch | Quality | Systems & IT | Sales/ Marketing | Finance/ Admin | Human Resources | Training |
|--|-------------------------|---------------------|-----------------------------|------------|----------------------|---------|-----------------|---------------------|-------------------|--------------------|----------|
| Staff recruitment problems | 1 | 6 | 7 | - | - | 2 | - | 2 | 1 | - | 1 |
| Staff retention problems | 1 | 3 | 1 | 1 | 1 | 2 | - | - | - | 1 | 1 |
| Can't afford to recruit high salaried staff | 4 | 1 | 2 | - | 3 | 1 | - | - | - | 1 | - |
| Older workforce | 4 | 7 | 1 | - | 2 | 2 | - | 2 | 1 | - | - |
| Outdated skills | 4 | 5 | 2 | - | 3 | 3 | - | 2 | 1 | - | 1 |
| Lack of hands-on/right experience | 4 | 4 | 3 | 3 | 3 | 1 | 1 | 3 | 4 | 4 | 2 |
| Employees reluctant to train | 1 | 7 | 2 | - | 1 | 2 | - | 1 | - | - | - |
| Can't keep abreast of fast pace of change | 2 | 4 | 4 | 2 | 1 | 4 | 4 | 2 | 2 | - | 2 |
| No suitable training available | 2 | 6 | 1 | 2 | - | 2 | - | - | 1 | 1 | 1 |
| Don't know where to access suitable training | - | 3 | 1 | - | - | - | - | 1 | 1 | - | - |
| Cost of training | 2 | 5 | 8 | 2 | 6 | 3 | 7 | 2 | 1 | 3 | 1 |
| Lack of time to train | 5 | 7 | 10 | 4 | 6 | 6 | 5 | 3 | 3 | 4 | 6 |
| Other factors | 14 | 12 | 6 | 3 | 3 | 5 | 1 | 5 | 8 | 4 | 1 |

Notes: a horizontal dash (-) is used in cases where no underlying factors were cited. Missing case: one vehicle manufacturer.

One 1st tier supplier of glazing systems attributed it to the educational system and the emphasis on coursework rather than exams:

"The educational system is not capable of producing people who can function in this high pressure environment e.g. re the time constraints. Now people do more coursework at school, not exams, so they don't learn to operate in a pressured environment. As we move away from the traditional education system that did deliver people who could operate in a pressured system we are losing the skill to operate to tight deadlines at school and our best is not good enough."

A vehicle manufacturer commented:

"No school/college will provide you with people with what skills you need. You must develop your own people. But at technical, maintenance and graduate level jobs colleges/universities need to do a better job at providing people with the business skills they need to work in industry and we need willingness and commitment of the people. We need to be leaner, smarter. Especially important are the people on the line building the cars (the rest are support functions) but they have less esteem and work ethic."

To fully appreciate the changes occurring in the jobs people do and the way they operate, and the skill implications of these changes, it is necessary to focus on individual occupational groups.

5.3 Changing skill needs for Senior Managers and Directors

5.3.1 Key competences and changing requirements

Whether among vehicle manufacturers, 1st tiers or SMEs the consensus view was that Senior Managers and Directors are expected to be technical experts in their field, whether engineering, finance, human resources, IT, purchasing, or sales (see Text Box 5.1). They also have ultimate responsibility for the company's resources, investments and programmes, the working environment, and the wellbeing of staff and employees. Possessing international knowledge and contacts, and the ability to operate successfully on a global basis, are vital competitive tools. They must be able to handle increasing complexity. It is their task to keep track of changes in the business environment, whether in the marketplace or in the supply base, and to make decisions and implement revisions to products and processes in order to meet customer expectations. At the same time, they must ensure the business keeps up with incoming Government and EU legislation, as well as other standards and initiatives and the increasingly onerous documentation requirements of this and (if suppliers) of their customer contract parts specifications (i.e. PPAPs).

They must be good strategists and analysts. They are senior change agents in the company, and so it is crucial that they demonstrate leadership, and can manage change, motivate, and inspire the development of a culture of innovation, getting people to "think outside the box" as a 1st tier put it. This was crucial since the business environment was getting more difficult. They needed to get everyone involved in driving down costs, improving performance and attacking this innovatively across the whole company. Comments were frequently made about thinking 'smarter', doing things more speedily, improving performance, providing a better customer service and getting products to market more quickly. At the same time, there was an increasing emphasis on being more Health and Safety conscious, e.g. in driving, the use of computers, and the use of telephones in cars.

Text Box 5.1: Key competences for Directors and Senior Managers

- Technical experts in their field.
- Leadership in managing change, improving performance and reducing costs.

- 'Soft' skills to engage and motivate people.
- International knowledge and contacts.
- Strategic and analytical ability.
- Responsibility for firm's resources and investments.
- Keep track of changes in the external business environment.
- Monitor and ensure the company implements requirements of legislation, standards and initiatives.
- Ensure the business implements revisions to processes, systems to meet changing customer expectations.

For firms that are part of large multinational groups, Senior Managers and Directors have a powerful role in bringing local plants into line in embedding standard group systems and procedures, including continuous improvement methods, while ensuring there are adequate language skills for intra-group communication. Local plants are globalizing, and it is their job to understand the workings of their international company. For one overseas-owned 1st tier, this entailed "Bringing in competency frameworks for senior managers," which was changing the way they work.

"We need leadership to move up another gear" said a vehicle manufacturer, looking to the next big stage challenge in the group's growth, but they, too, needed greater leadership competence among Senior Managers to wield a radical transformation in the plant. Leadership requires better communication and engagement with people inside the company. People skills were to the fore:

"The management style is changing to get the best out of people by identifying their training needs, by seriously listening to them and looking at how they do it, involving them much more, buying into this" asserted an SME machining and fabrications supplier.

This was also important externally, whether with customers or partners or (in the case of some vehicle manufacturers), suppliers. Indeed, among two vehicle manufacturers:

- There was a recognition of the need to manage the whole supply chain more strategically, and to get more involved in doing this directly rather than relying solely on the 1st tier.

A wiring harnesses 1st tier commented on the impacts for them of their key customer's strategic global sourcing:

“We plan to stay competitive and need to stay abreast of our major customer’s needs to ensure we continue to supply them. In our market, customers are global. Their buyers are no longer local. They may be in Europe. We no longer know them so well. They operate globally so we have to. We are measured to the same yardstick/attributes as global suppliers so we need to know what competition is against us to know how to get the job.”

A forgings SME highlighted supply chain problems they encountered, stating: “It is difficult being a 2nd tier because the 1st tier are not cascading information down from the OEMs.”

5.3.2 Skill gaps

In their expectations of the knowledge and expertise required of Directors and Senior Managers, the vehicle manufacturers were virtually unanimous that they needed to have better team working skills (5 cases). These skills were also among the most prominent deficiencies for the 1st tiers and SMEs. Indeed, there was a remarkable degree of agreement between these three groups about where improved competences were required (see Table 5.1, Table 5.3 and Appendix 6).

Table 5.3: The incidence of specific skill gaps in Directors and Senior Managers among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (9) of skill gaps |
|--|---|
| Team working skills | 1 |
| Personal and relationship skills | 2 |
| Language skills | 3 |
| IT and PC skills | =4 |
| Leadership skills | =4 |
| Communication skills | =4 |
| Health and Safety skills | =5 |
| Management skills | =5 |
| Business planning and development | 6 |
| Process, technical and production skills | 7 |
| Customer contact and care skills | 8 |
| Technical and design skills | 9 |

Refer to Appendix 6.

‘Soft’ skills like personal and relationship skills and communication skills – also leadership skills in which soft skills, too, are inherent – were also considered as areas for improvement, reflecting the change of management style needed to motivate and engage the workforce to give their best.

One vehicle manufacturer commented that their group leaders and specialists (junior managers) needed to be effective in business at graduate level, but lacked these skills because they did not learn them at university. Once they were promoted to senior level, they needed ‘soft’ skills.

The need for better language skills derives from the need for Directors and Senior Managers to operate successfully on a global basis.

The perhaps surprising emphasis on Health and Safety is a factor of the welter of legislation they must implement, but also of a growing emphasis on ensuring the wellbeing of staff and employees.

IT skills were also high on the list of skill deficiencies, more markedly among the SMEs where it was the most significant gap (see Appendix 6).

5.3.3 Underlying factors for tackling skill gaps

Firms were asked whether a range of specific underlying factors were relevant to them in tackling the skill gaps or limitations they identified among their Directors and Senior Managers. As Table 5.3 and Appendix 7 show, the most frequently cited factor overall was the lack of time to train, reflecting the intense pressure that firms are under as they strive to maintain their competitive edge, or even just to survive in a fiercely aggressive business environment.

There was some differentiation between vehicle manufacturers, 1st tiers and SMEs. Most prominent issues among the SMEs, for example, were having older staff with outdated skills, and difficulty in recruiting new staff due to the poor salaries they could pay them.

Many firms raised other factors, and prominent among these were issues related to the ability to manage organizational change (see Appendix 7e), such as:

- People were in positions they were not trained for.
- Dealing with changing market conditions.
- Downsizing the workforce.
- Lack of experience outside the organization to draw on.
- Implementing different procedures as a result of group standardization, e.g. of the continuous improvement way of working.
- Moving more to sales and distribution, rather than manufacture.
- Dealing with greater business complexity.

5.4 Changing skill needs for Manufacturing Operators

5.4.1 Key competences and changing requirements

Technical expertise in processes, equipment, and knowledge of materials are fundamental competences needed on the shopfloor, together with the ability to move on as these change (see Text Box 5.2, overleaf). Among some of the vehicle manufacturers building, fitting and finishing rather than manufacture meant there was some loss of the skill base, though new machinery and equipment always involved a learning curve for operators. Some vehicle manufacturers and, particularly, suppliers, though, highlighted the greater sophistication of technology, more automation, and radical changes occurring in processes such as welding.

Text Box 5.2: Key competences for Manufacturing Operators

- Technical expertise in building vehicles and producing components to specification, using machinery and processes, and knowledge of materials.
- Ability to move on as changes occur in processes and equipment, where these become more sophisticated, e.g. more automation; electronic rather than mechanical engineering; laser welding.
- (In some cases) lower skill base required through change from manufacture to fitting/assembly/finishing.
- Ability and willingness to take on more responsibility.
- Ability to multi-task e.g. use downtime productively when working on CNC machines; do their own setting, changeovers and do total preventive maintenance (TPM) (NB Maintenance can also occur as a separate function).

- Understanding of new regulations and current and incoming standards, e.g. reemployment legislation, environmental legislation, standards and continuous improvement methods needed for quality production, e.g. 5 'S', 6 Sigma processing, lean manufacture.
- Implement quality controls and standards; inspect their own work.
- Good basic skills – numeracy, literacy, IT skills – to follow instructions, understand statistics, fill in charts and do capability trends for Statistical Process Control.
- Awareness of the business climate, pressures on the business, and reasons for/willingness to implement change e.g. lean manufacture, to work smarter, and to proactively engage in improvement and innovation, to suggest ways to reduce costs and improve quality, speed and reliability to tighter deadlines.
- Ability to work well in a team, especially raised with regard to cell working.
- Physically fit, smart, good communication skills to work in teams and to talk to customers doing inspection visits.

Manufacturing operators were seen as key to enabling the business to meet more stringent customer expectations, and to reduce the cost base through productivity, quality, and reliability improvements. Operators needed to take more responsibility in implementing quality controls, and inspecting their own work. They needed good numeracy and literacy and IT skills to follow instructions, use statistics, prepare charts, and do capability trends for Statistical Process Control.

Quality techniques and continuous improvement ways of working were used, or were in various stages of implementation, such as lean manufacture, 6 Sigma and 5 'S'. A machining and fabrications SME noted the attitudinal change needed on the shopfloor to make this successful:

"We are placing a big emphasis on furthering lean manufacture and increasing our training throughout the shopfloor on this. We will conduct education into the process of lean manufacture and how it affects our job – working smarter not harder. It is a culture change. They need to understand that changes are to secure the business not to threaten their jobs, and we use capital equipment/technology to keep pace with change."

It was seen as increasingly crucial to engage their active input to contribute innovatively their ideas to improve. A 1st tier powertrain supplier said, for example: *“We need their increased involvement in improving the processes as they have all the ideas to improve. We are digging deep to find every drop of idea...We want people not just to press buttons but also do to more measurements and reprogramming of machines”.*

The ability to work well in teams was raised, particularly with regard to cell working. Multi-tasking capabilities were sought to enable machine downtime to be used productively. A machining and fabrications SME was keen to see women on the shopfloor, as they believed that they were better able to multi-task. Getting over gender stereotypes about engineering was key:

“We need men to use their downtime of operating the CNC machines productively by doing something else.” They added: “We need to be able to work smarter, and multi-task. We want women to come into the engineering industry especially in cell working as they can multi-function. There are very few women in engineering companies. We once had a female apprentice but she gave up. It is portrayed as a male thing in society.”

5.4.2 Skill gaps

Manufacturing Operations was the only occupational group to register skill needs of every type (see Table 5.2, above, and Appendix 6). Chief among the gaps were process, technical and production skills (15 firms overall), particularly notable among the 1st tiers, reflecting the changes occurring in equipment and processes and the need for operators to acquire the necessary skills to use these, as well as a greater focus on quality improvements (see Table 5.4, overleaf). A 1st tier seating supplier noted their: *“increasing quality problems due to higher expectations from the customer.”* A key concern for one vehicle manufacture was the provision of new technical features in cars involving electronics, such as computerized management systems.

The emphasis on implementing quality techniques and continuous improvement procedures placed a great significance on basic skills, one third of all firms flagging this as a current inadequacy among operators, similarly their IT and PC skills.

The prominence of deficient team working and communication skills indicates problems particularly in relation to cell working, as well as handling customer enquiries when inspecting production progress.

The need for improvement in leadership and management skills was highlighted for team leaders, for example, but one vehicle manufacturer commented that *“Supervisors lack management skills. They need skills in how to manage and motivate a team.”*

Table 5.4: The incidence of specific skill gaps in Manufacturing Operators among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (8) of skill gaps |
|--|---|
| Process, technical and production skills | 1 |
| Basic skills | 2 |
| Team working skills | 3 |
| IT and PC skills | =4 |
| Communication skills | =4 |
| Health and Safety skills | =4 |
| Leadership skills | 5 |
| Management skills | =6 |
| Personal and relationship skills | =6 |
| Technical [and design] skills | =6 |
| Business planning and development skills | 7 |
| Customer contact and care skills | =8 |
| Language skills | =8 |

Refer to Appendix 6.

5.4.3 Underlying factors for tackling skill gaps

Issues were raised by almost one third (7) about the need to upskill older Manufacturing Operators especially, but it was also pointed out that outdated skills could occur at any age, such as the fast pace of change (see Table 5.2, above, and Appendix 7). The lack of suitable training, notably in fabrication, was a factor for around one quarter (6), including

cold forging, welding, and robotic skills. This was the most significant underlying issue among the 1st tiers. Such was the pressure on businesses, and so lean were they, that it was proving problematic to provide cover to enable people to train, and lack of time to train was an important barrier. The cost of training was also a factor, but less significant for vehicle manufacturers than for suppliers.

Recruitment problems were raised in getting the right people, whether with a positive work ethic, technical qualifications (e.g. apprenticeships) or the right experience of manufacturing. A machining and fabrications SME commented: *"We have problems getting the calibre of person we want on the shopfloor to work in cells, as they tend to be disaffected school leavers. The rest go to university, and few do apprenticeships"*. A similar point was made by a large 1st tier. Other firms, including a major global vehicle manufacturer, also commented on the need for self-discipline, a positive work ethic including the need to turn up, and on time, a point that echoed down the tiers, including among the SMEs.

Some firms were doing what they could to train people in-house. One 1st tier was conducting training to resolve skill gaps in first aid, forklift truck driving, production (NVQ2) and management (team leaders to NVQ3), as well as job specific skills such as welding. They needed to train some of the setters in instructional techniques so that they could train others. Another 1st tier, though, commented that their company's emphasis on growth rather than people development was the major factor.

Some reluctance to train was reported occurring among Manufacturing Operators. One 1st tier commented that older sections of their workforce just did not believe that the plant would shut, despite the respondent indicating that a move to off-shore production was being considered. A vehicle manufacturer, too, noted some lack of interest and motivation among their operators to overcome their inadequate management skills.

Various additional factors were noted (see Appendix 7e). Some of these relate to shortages in the labour pool, or the lack of preparation for, or interest in, manufacturing contributed by the school curriculum or by universities:

- People do not learn about continuous improvement at school.
- People do 'A' levels rather than apprenticeships.
- People are not educated about engineering at school.
- There is a trust issue because people think they will lose their jobs if they improve productivity.
- Lack of appreciation of the pressures on businesses, and disbelief that their jobs are under threat if they do not improve productivity.

5.5 Changing skill needs for Technical, Design and Engineering

5.5.1 Key competences and changing requirements

Possession of appropriate technical and industry-specific expertise is crucial in Technical, Design and Engineering occupations (see Text Box 5.3), and this varies according to their specific function, from design to monitoring, control and repair. A sound knowledge of capital equipment, processes and materials is important in order to convert customer requirements into products or components. Strong computer literacy and abilities in advanced software/programming are paramount, such as for product and component design including CAD and 3-D modelling, advanced electronics and also for data transfer methods between customers and suppliers. Having the ability to link-up with their customers by investing in the same software technology for computer modelling as their customer uses is crucial for suppliers.

Engineers are at the forefront of innovation. Keeping at the leading edge of technology as it advances at a furious rate is a key expectation of the design and engineering function. *"It is an ongoing set of changing goalposts"* said one SME, echoing the comment made by a vehicle manufacturer about the need to: *"continually update skills to implement new technological solutions to vehicles and to build on core skills."* It is all about meeting, or exceeding, end-customer expectations and giving more choice and better options. One 1st tier highlighted reduced noise inside the car as the major objective for their design engineers, for example. But innovation is not solely about product differentiation in the marketplace (though clearly that is a major objective in achieving competitive advantage), but also through helping to maximize profits and reduce costs by being innovative in the design of products

for/and manufacturing processes. A powertrain 1st tier said: *“If they achieve less time to manufacture, even 2 seconds less, there is less energy consumed, less people needed, and so more profit.”*

They also need to understand and apply lean principles, including methods to eliminate waste, and ensure cost-effectiveness; also quality standards. Responding to current and incoming environmental legislation is also necessary.

Dealing with colleagues and customers as well as suppliers emphasizes the need for good communication and personal and relationship skills.

There is a need for Maintenance engineers to be multi-functional (e.g. production personnel as well) in order to give companies more flexibility, and proactive in preventing problems rather than reactive in dealing with machine breakdowns, as preventive maintenance has a major part to play in allaying spiralling production costs due to stoppages. Advances in production processes have introduced automation and robotics into the maintenance skill set.

Text Box 5.3: Key competences for Technical, Design and Engineering

- Technical and industry-specific expertise e.g. electrical/onic engineering, hydraulics, mechanical engineering, manufacturing engineering, maintenance engineering, tooling. Tasks according to the role ranging from design to monitoring/control/repair.
- Multi-functional and proactive rather than reactive i.e. Maintenance engineers.
- Adapt to change, and acquire appropriate technical knowledge as the technology advances. Keep an eye on what is new in the marketplace.
- Understand innovation/be innovative e.g. re differentiation in design of products to stand out in the marketplace; and in manufacturing processes, e.g. to reduce time/costs involved.
- Ability to collaborate with customer/convert customer requirements into products/components knowledge, so an understanding of capital equipment, processes and materials is also important.
- Computer literacy e.g. on software for data transfer, CAD, 3-D modeling,

robotics, Pro-E, FMEA, geometric tolerancing, fly by wire driver systems, ground hugging radar, advanced microprocessor components etc.

- Ability to understand and apply lean principles, including cost effectiveness, elimination of waste.
- Ability to implement quality standards/principles and reliability.
- Problem solving and analytical skills.
- Knowledge of environmental legislation e.g. climate change levy, end of life vehicles, class 2 emissions, hexavalent chrome etc.
- Team working, communication skills, interpersonal skills.

5.5.2 Skill gaps

Around half (13) of the survey participants stated that process, technical and production skills were lacking among Technical, Design and Engineering staff, and over one quarter (7) highlighted deficient technical and design skills (see Appendix 6 and Table 5.5). Skill gaps were particularly prevalent among the 1st tiers, and it was also there that limitations in knowledge of the process were focused. *“They have a lack of understanding of manufacturing operations and the constraints placed upon them”* commented a 1st tier exhaust systems supplier. Another asserted that their engineers needed to align themselves more with their production colleagues (so needing better team working skills to achieve this). *“They need to break the culture of ‘this is the way we do things here’”* they concluded.

In many cases they were not so much gaps as limitations in being technically advanced. *“Keeping up to date is an issue,”* confided a 1st tier engines supplier. Issues arose due to the recent introduction of new systems, or the move from mechanical to electronic engineering. A vehicle manufacturer also commented that skill gaps in technical and process skills among their Service and Repair people arose as the equipment progressed.

CADCAM skill needs occurred among the vehicle manufacturers as well as the SMEs. Issues about maintenance skills arose among all 3 groups. Specific issues were identified in relation to:

- The right level of skill among Maintenance Engineers.
- Electronic engineering skills.
- Shortage of technical engineers.
- Limited CADCAM skills.
- IT and PC skills.

Table 5.5: The incidence of specific skill gaps in Technical, Design and Engineering among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (5) of skill gaps |
|--|---|
| Process, technical and production skills | 1 |
| IT and PC skills | 2 |
| Technical and design skills | 3 |
| Management skills | =4 |
| Team working skills | =4 |
| Communication skills | =4 |
| Business planning and development skills | =4 |
| Language skills | =5 |
| Leadership skills | =5 |
| Personal and relationship skills | =5 |
| Health and Safety skills | =5 |

Refer to Appendix 6.

In other cases, there was no problem about their technical ability, but other inadequacies. One company highlighted the need for better project management skills, attributing this deficiency to the limited expectations placed on engineers by their managers, saying: “Expectations are not high enough.”

Implementing lean manufacture, and selected vehicle manufacturers’ Production Systems, reinforced the need for good analytical and problem-solving skills.

5.5.3 Underlying factors for tackling skill gaps

Indicative of the pressures facing engineers through relentless change, the key issue for tackling their skill gaps was the lack of time to train (10 firms). Indeed, problems in finding the time to train and the cost of the training they needed to do were more acute for Technical, Design and Engineering occupations than for any other (see Table 5.2, above, and Appendix 7). Additional factors included:

- Shortages in the labour pool.
- The use of bespoke technology related to specific vehicle manufacturers.
- Their line managers’ limited expectations of engineers.
- The need to break the prevailing culture of ‘this is the way we do things here.’
- The need for self-improvement capability.
- The lack of Government funding for trainees over 25 years.

A factor of major significance was staff recruitment problems. Vehicle manufacturers, 1st tiers and SMEs were all affected. Various firms (all levels) commented on the shortage of Maintenance and Technical Engineers. “In technical/maintenance engineering it is difficult to find people with the right level of skill. There are not enough people in the labour pool, so we spend time and money upskilling our own people,” noted a vehicle manufacturer. A second vehicle manufacturer trained their production people into maintenance and funded it themselves due to the Government’s bar on funding trainees over age 25. A 1st tier also indicated that they retrained their own maintenance staff, saying: “There is a lack of people with the right experience and know-how.” For another 1st tier, electronic engineering skills were now needed for Maintenance Engineers. An SME forgings supplier observed that there was a shortage of technical engineers, saying: “We can’t find good technical engineers, and the ones we can find we can’t afford. They command high salaries so they go to the higher paying firms” though there was clearly a shortage more generally. A tube components SME spoke of a succession issue ahead for their Maintenance Engineers: “There will be an issue in trying to replace 2 skilful guys. There will be a problem in getting people who are as good.” They were trying to pre-empt this through a Modern Apprenticeship.

There were problems in finding engineers of all kinds. *“We are not getting recruits with the knowledge we need”* said a vehicle manufacturer, referring to engineering in general. Another SME, supplying discs for gearboxes and other systems said bluntly: *“A big problem is the next generation of trained engineers that aren’t appearing.”*

There was also some reluctance to train among engineers. A vehicle manufacturer, for instance, had noticed: *“Some reluctance to train among older people, and some are also young people without the right experience.”* Another vehicle manufacturer highlighted the lack of suitable training available, because their needs were bespoke in relation to their group’s technology.

5.6 Changing skill needs for Purchasing

5.6.1 Key competences and changing requirements

Purchasing staff obviously need to have a good technical/engineering background as they must understand the technicalities of the parts and materials they procure; have a sound understanding of quality standards and environmental regulations to ensure that parts supplied are compliant and traceable, and of the documentation required from suppliers (e.g. pre-production parts approval – PPAP). They also needed to be IT literate both for data handling and where they were involved in procurement via internet auctions (see Text Box 5.4).

Text Box 5.4: Key competences for Purchasing

- Proficiency in IT, data systems, internet auctions.
- Good numeracy, literacy.
- Communication and negotiation skills in order to obtain the best price.
- More dispersed sourcing globally to get the right materials at the right price, so increasing need for overseas knowledge (including languages), and development of overseas links, to locate and source from suppliers worldwide.
- Understanding of lean supply chain organization and how it conflicts with long-distance sourcing re increased transportation costs.
- Knowledge of export/import, packing, exchange rates, regulations/laws overseas and understanding of the data required/used in foreign countries.

- Ability to read technical drawings.
- Knowledge of legislative changes e.g. environmental, end of life vehicles, so must ensure that components and materials are environmentally friendly and traceable.
- Knowledge of quality regulations/competency issues and audits re supplier sourcing e.g. pre-production parts approval (PPAP).
- Understanding of the process, to determine whether suppliers make goods compliant with customers: particularly important for direct line assembly.
- Closer monitoring of suppliers including some tendency for greater involvement in supplier development.

The Purchasing function has a primary role in keeping business costs down by sourcing components and materials at the best price. This has placed even greater significance on good communication, negotiation and relationship building skills. The geography of sourcing is increasingly global, since cheaper supplies are more likely to be found further afield (for example in the Far East or India). The possession of overseas knowledge has therefore risen in importance, not just of suppliers and foreign language skills, but also of packing and shipping, import/export regulations, and the specific data requirements of foreign countries. One SME ensured that their Purchasing staff acquired the knowledge they needed by sending them to college, as well as bringing people (?consultants) in to talk about different countries.

A vehicle manufacturer, though, identified a dichotomy between low-cost supplies sourced at great distance, and increased transportation costs, saying that Purchasing needed to be aware of: *“...the impact of trying to be a lean organization when we purchase from countries across the world, e.g. more transportation costs and new methodologies to use, and electronic purchasing.”* An engines 1st tier was adamant that they tried to buy from UK suppliers, but noted: *“If the number of UK manufacturers declines we shall have to look further afield.”* It is a point worth considering that it will be difficult for firms to engage directly in supplier development (as some – including among the vehicle manufacturers – voiced the intention of doing) if those suppliers are long-distance.

A tube components SME had an individual whose role was Production and Material Control. They were expected to know the business, as well as those of suppliers and customers, and

to be able to link all three. “They look at demand from customers and [ensure that] sufficient materials are coming in to cover that demand” they said. To accomplish this they had an IT system linked to the material and management function.

Some comments were made by vehicle manufacturers and suppliers about the greater burden on Purchasing staff due to increased outsourcing of the company’s work to bring costs down.

There was an indication by a large 1st tier seating supplier that the Purchasing function itself could be outsourced in order to reduce costs, in the way that certain vehicle manufacturers have procurement and logistics partnerships with external partner organizations. It will be interesting to see if this is the start of a trend.

The decision to source from distributors, rather than from original equipment suppliers (noted by one small 1st tier firm) was also made with the intention of reducing costs by buying from firms which in turn could obtain economies of scale in their own sourcing. Businesses which were branches of large [multi-national] groups pointed out that they could benefit from combined purchasing in order to obtain preferential prices through bulk purchasing. For this reason some businesses had no parts purchasing on-site where this was done centrally. In the case of some multi-national groups parts purchasing decisions could be overseas.

5.6.2 Skill gaps

The incidence of skill gaps was remarkably low in the Purchasing function, particularly among the SMEs (see Appendix 6). Skill needs in languages and business planning, as well as process, technical and production skills were the most likely to be raised (see Table 5.1, above, and Table 5.6, overleaf).

Table 5.6: The incidence of specific skill gaps in Purchasing among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (3) of skill gaps |
|--|---|
| Language skills | =1 |
| Business planning and development | =1 |
| Process, technical and production skills | =1 |
| Team working skills | =2 |
| Communication skills | =2 |
| IT and PC skills | =2 |
| Customer contact and care skills | =3 |
| Technical [and design] skills | =3 |

Refer to Appendix 6.

The wider geographical reach of sourcing patterns has accentuated the deficiencies in international knowledge, and additional skill gaps raised by firms were frequently connected with this issue, including:

- Overseas cultural knowledge.
- Knowledge of Europe, and
- Laws and regulations, data requirements of foreign countries.

5.6.3 Underlying factors for tackling skill gaps

Lack of time to train was the main underlying factor for tackling skills gaps among Purchasing staff (see Table 5.2 and Appendix 7). Beyond this, lack of the right experience was flagged up. Among additional factors appeared:

- Lack of the qualifications needed.
- Poor strategic understanding of how IT technology could be utilized to the firm’s advantage (not just concerning limited IT skills themselves), and
- Negotiation skills.

5.7 Changing skill needs for Receivals, Stores, Despatch and Supply Chain Logistics

5.7.1 Key competences and changing requirements

For people working in Receivals, Stores and Despatch, and Supply Chain Logistics two distinct levels of competence exist (especially noticeable at 1st tier level). At the lower level, NVQ2 level skills are needed in warehousing, basic IT skills, and adequate numeracy and literacy to cope with the paperwork. Forklift truck driving skills are needed for those moving goods around the plants. At the higher level, people of degree level calibre are needed. A sound understanding of the production process is necessary.

The role of Receivals, Stores and Despatch has intensified in workload and complexity, has become increasingly high tech, necessitates greater responsibility and organizational capability, and is more pressured in terms of deadlines, data handling and documentation, and meeting customers' bespoke requirements for the way that parts and materials are supplied (see Text Box 5.5). So demanding are the specialist competences and organizational remit of this role, and the margin for error absent, that this function was wholly or partly outsourced to logistics partner organizations by around half of the vehicle manufacturers in the survey, and some 1st tiers.

Text Box 5.5: Key competences for Receivals, Stores and Despatch

- Operates on 2 levels: NVQ2 and good basic skills at lower level, degree/diploma calibre at higher level, e.g. diploma in logistics management.
- Greater need for IT proficiency (specific programmes e.g. SAP) as the function is becoming more computerized, more high tech, e.g. firms moving to goods being logged in at the door using barcode technology, integrated management systems (IMS) re customer orders.
- Need to understand product codes e.g. of materials, as specified by EU.
- Understanding of what constitutes good customer service. May also have customer contact, so need communication skills.

- Kanban, Just-in-Time and Just-in-Sequence (i.e. direct to point-of-build position) requirements of customers are increasing the frequency of despatch and deliveries, so putting more pressure on right quality, in right volumes, in right time slot, with correct labeling, paperwork and packing. May also entail higher inventory levels in order to supply more frequently, so more work for Stores.
- Need to be well organized and tidy, good time management and planning, team work, ability to work to tight deadlines under pressure, handle greater complexity.
- Internal logistics deliver parts around the plant, so forklift truck driving skills are needed. Work with production. In some firms, also chase parts from suppliers.
- Environmental awareness/management re handling of waste streams (may be done by Despatch personnel). Need to reach 'zero to landfill' position in 2005.

The drive among vehicle manufacturers to embed lean principles and cut costs has radically intensified the time-slots for Just-in-Time deliveries. *"More and more parts are supplied by JIT"* said one vehicle manufacturer, *"and this is reducing inventory levels and so leading to more efficiency."* *"Kanban operates here"* said another: *"Pull-based systems are more intensive, with greater volumes in a shorter supply time."* A small 1st tier wiring harnesses firm supplying mainly to this vehicle manufacturer revealed that the knowledge their own employees needed had *"changed considerably."* Procedures were: *"more fine tuned, more complex and more organised"* due to different delivery points at their customer's logistics partner, and they had to be able to *"deliver the right quantity in the right package within the delivery window, with the right part in the right place."* They were going onto a web-based system to organise the necessary schedule changes, and would subsequently roll it out to the Stores section.

A 1st tier powertrain supplier was now making deliveries to the North East 4 – 5 times a day, instead of once a day, as before. *"We have the burden of storage now"* they said, adding: *"but if our manufacturing was slicker we would do the same with our suppliers."* The SMEs were also having to fulfil increasingly complex and intensified deliveries. One had recently been asked to change from their normal monthly supply to daily supplies. Another commented that as they increasingly adopted JIT, their Receivals, Stores and Despatch people needed to become more familiar with the electronic integrated management systems for

customer orders; similarly the supply chain logistics. *“This will enable us to get accurate information from our suppliers”* they said. A hand-held scanner is used to read bar coded information.

Ensuring traceability was the key factor. Suppliers which had not already moved over to computerized booking in of parts and materials were planning to. This is clearly a major change to procedures and skills for those firms which have yet to invest in the necessary systems. *“We need to understand about the product and how to prepare paperwork to send it, to ensure traceability of what is sent”* said an SME injection moulder. *“We need to be automated. We are trying to do that, so we need to understand the programmes used to send the goods.”*

5.7.2 Skill gaps

Skill needs were relatively few among the SMEs, probably reflecting the fact that some had not yet invested in the new systems that most of the 1st tiers had already adopted, or were not experiencing the same organizational complexity that the 1st tiers faced in meeting their own customer expectations (see Appendix 6), though this must surely be on the horizon. Among the surveyed firms overall, though, IT, team working skills, and process knowledge (whether relating to the procedures used in the Stores, or concerning the relevant production system) were most likely to be inadequate, as raised by about one fifth in all (see Table 5.1, above, and Table 5.7). The identification of deficient leadership skills is indicative of the importance of good organizational ability in the Receivals, Stores and Despatch function.

Table 5.7: The incidence of specific skill gaps in Stores and Despatch among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (5) of skill gaps |
|--|---|
| Team working skills | =1 |
| IT and PC skills | =1 |
| Process, technical and production skills | =1 |
| Basic skills | 2 |
| Health and Safety skills | =3 |
| Customer contact and care skills | =3 |
| Leadership skills | 4 |
| Language skills | =5 |
| Communication skills | =5 |
| Personal and relationship skills | =5 |

Refer to Appendix 6.

In view of the greater requirement for reading and preparing documentation, it is significant that basic skill needs were also highlighted by 4 firms. Being more customer-facing than their role formerly was has brought into sharper focus the need for better customer care skills and communication skills. Language skills were needed by production analysts working for a vehicle manufacturer.

5.7.3 Underlying factors for tackling skill gaps

The main issues for tackling the skill gaps among Receivals, Stores and Despatch were the lack of time to train, and the cost of training, as highlighted by about one quarter of firms overall (see Table 5.2 and Appendix 7). Three firms stated that they were unable to recruit people due to the higher salaries they could obtain elsewhere – such as the local retail park. A problem of comparable magnitude concerned the outdated skills of older employees, or people’s lack of the right experience. The need for specialist skills, as well as business awareness, time management, planning and ‘soft’ skills among a vehicle manufacturer’s graduate intake: they ran a 1-year industrial placement scheme within the company to instill this awareness into administrative staff who were retraining for the receivals and logistics function.

Additional factors mentioned by individual firms included:

- Lack of people's motivation to work hard.
- The issue of increased customer expectations.
- Issues for one SME about how employees would adapt to the implementation of an IT system (see Appendix 7e).

5.8 Changing skill needs for Quality

5.8.1 Key competences and changing requirements

Ongoing change occurs in the Quality function as new tools and techniques are introduced. Keeping abreast of world standards – whether in automotive, rail, aerospace or other sectors – and specific customer requirements is an increasingly onerous task given the ever tighter quality expectations associated with their implementation of lean manufacture and the pressure for reduced cost, better performance, greater reliability, and higher output (see Text Box 5.6). An SME described the demands as “relentless.” TS 16949 and 6 Sigma were particularly mentioned, one SME commenting that TS 16949 was “very demanding,” a 1st tier noting the volume of documentation required.

Various 1st tiers and SMEs spoke of higher demands in relation to Parts Per Million (PPM) defects. A large multi-national seating 1st tier noted, for example: “The increased expectation of customer on quality – it has to be 98%/99% (Toyota's is 100%).” This had raised the calibre required of the Quality team. They were intent on: “arming them with all the skills needed to achieve that, looking at doing NVQs, and at man management in the quality team. For quality engineers we looking at degree level now, or at least HNC.”

This increased expectation for improved reliability and reduced defects has filtered through to SMEs. An SME injection moulder commented: “The levels of faults we could get away with are not now acceptable: it was 1 part per million defects formerly, now it is 1 part in 10 million.”

One 1st tier powertrain supplier was among those to describe the greater focus placed on the customer service and relationship building skills inherent in problem identification and resolution, and the need for strong leadership ability:

“Our customers' PPM tolerance is 25 defects per million. One million parts is half a year's supply from us. So leadership in

quality is higher to get relationships with customers particularly (but it is also important re relations within the workforce). We need to assure customers that problems are contained, that we are making a quick response, that 100% checks are immediately done. This is getting more important but as important is to get the right solutions, not to repeat the problem, so diagnostics and fault finding are critical.”

Text Box 5.6: Key competences for Quality

- Quality specialists/managers need to be of graduate calibre (or HNC).
- Knowledge of world standards for automotive, rail, aerospace and other industries.
- Ability to keep in step with changing customer requirements and ever-heightening expectations for reduced/no defects and specific quality standards e.g. ISO/TS 16949, lean manufacture/6 Sigma, and what these involve in terms of implementation and attainment.
- In some firms, Quality team also responsible for environmental management.
- Increasing tendency for expectation that operators will conduct own quality checks and resolve problems.
- Mathematical, IT and statistical ability, for inspection, measurement, charts, documentation (e.g. Standard Process Control).
- Good literacy required for understanding and writing manuals.
- Customer facing as well as working with production in-house and dealing with quality problems in suppliers, so need good communication skills as well as diagnostic skills, for quick responsiveness in dealing with any quality concerns, checks done immediately, preventing problem re-occurrence.
- Increasing expectation of their proactive/innovative capability in preventing problems occurring.
- Understanding of production processes, including those of suppliers.
- Identify where training needs to be done in the plant to improve abilities in diagnostic techniques and data interpretation.

The Quality function involves specialists (quality engineers/managers) of graduate (or at least HNC) calibre, and

lower level personnel involved in quality assurance. A better standard of education and qualifications was needed due to the range of tasks they had to accomplish. For a forgings SME it was vital that employees were: *"IT literate, had maths and communication skills, can use attribute and direct measurement gauges (inspection equipment), understand the process of heat treatment, plating, R & R studies (measurement, logged by 3 people, must be within a certain range),"* in order to fulfil the requirements of the automotive quality standard TS 16949. Several 1st tier suppliers noted that Quality staff were also responsible for environmental management standards and systems.

There is now a growing tendency for operators to do their own quality checks, a trend evident among the vehicle manufacturers, 1st tiers and SMEs. A machining and fabrications SME stated that they used to have about 12 quality inspectors, now they had 3, and a Senior Manager in charge of Quality Assurance *"The difference is that operators inspect their own work. They do this OK"* they revealed.

For those firms focusing on the crucial role of manufacturing operators in relation to quality improvements, a key issue is engaging their involvement. A vehicle manufacturer spoke of the need for better basic skills in their production shops, but also for a change of attitude among operators and a willingness to identify and implement improvements. Significantly, their Midlands plant was way behind their Turkish plant in this regard:

"We require better qualifications in basic skills at production level but mindset work also needs to be done. We want them to identify ways to improve and capability to improve (we need a massive commitment equal to that in our Turkey plant). We want people to buy into the plant, and move from 'it's a job' mentality to 'it's a career' and take responsibility e.g. they need to turn up."

Another vehicle manufacturer also commented on the need for operators to: *"achieve ever tighter quality standards in the various shops."* They had a Quality audit team within production which focused on the manufacturing processes, and another which was outward-facing and dealt with suppliers, identifying anomalies in parts supplied, doing problem analysis and resolution to identify problems and resolve them speedily. The Quality team needed to *"Identify where training needs to be done to improve and be investigative and proactive"* they asserted.

The increased importance placed on lean manufacture has created a sharper focus on the supply chain's role in helping to reduce costs, improve efficiency and increase output. This was reflected in another vehicle manufacturer's assertion that there was now: *"a different focus on supply chain methods,"* indeed, an appreciation was apparent of their own role in forming a closer relationship with and development of their suppliers. Their concerns were two-fold: that Quality staff should maintain and improve quality standards within a lean organization, but also work with suppliers who were converting to lean and 6 Sigma based businesses *"and so work closely with them."*

5.8.2 Skill gaps

Many of the comments made by survey participants about the competences required of Quality staff, and the areas where change was occurring, concerned technical skills in the latest improvement techniques, process knowledge (whether of customers, own company, or suppliers), and greater IT literacy associated with more data handling, diagnostics and problem resolution. It is precisely in these areas, though, where firms were most likely to record skill gaps in their Quality staff (see Table 5.1, above, Table 5.8 and Appendix 6).

The importance of Quality staff having strong leadership skills, communication skills and the ability to build good relationships with customer, colleagues and suppliers highlighted inadequacies in 'softer' skills, particularly important to overcome if firms were to successfully engage the involvement of all production colleagues in improving quality and reliability. A prototyping sheet metal working SME, for instance, highlighted their own: *"Gap in leadership/management skills, because they need to cascade quality to the rest of the workforce."* A 1st tier also noted the importance of leadership skills in: *"...having influence on the rest of the business. Technically they are very good, but not very influential in getting people to change."*

Table 5.8: The incidence of specific skill gaps in Quality staff among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (5) of skill gaps |
|--|---|
| Technical [and design] skills | =1 |
| Process, technical and production skills | =1 |
| IT and PC skills | 2 |
| Leadership skills | =3 |
| Communication skills | =3 |
| Management skills | =4 |
| Team working skills | =4 |
| Personal and relationship skills | =4 |
| Customer contact and care skills | =4 |
| Language skills | =5 |
| Business planning and development skills | =5 |

Refer to Appendix 6.

Clearly, there were changing expectations among firms of their Quality personnel in dealing with change, and being proactive and forward-looking, precisely the attributes which some Quality staff lacked. A vehicle manufacturer commented, for instance: *“We need quality engineers who are able to be proactive i.e. to look forward and make suggestions, evaluate the process and propose ways of improving it.”* Another vehicle manufacturer indicated that keeping up with quality standards was an issue for them, and this issue was also raised among the suppliers.

5.8.3 Underlying factors for tackling skill gaps

The key underlying factor to which most others relate is that firms were focusing intensively on the continuous improvement philosophy. This underpins the comments made about Quality staff not making the necessary changes in their way of working. A glazing systems 1st tier was sympathetic to their Quality colleague’s problems in trying to keep up with change, saying: *“They need time to get a structure in operation to deal with issues raised by customers constantly.”* But another 1st tier commented that among their Quality staff there was: *“A lack of motivation, and personal style,*

are issues” if they were to take a lead on motivating the workforce to improve.

The problem of lack of time to train was the most frequently cited issue for tackling skill gaps in Quality personnel (see Table 5.2 and Appendix 7). This was one reason why technical skill gaps, e.g. on the latest quality techniques, had not been resolved. According to a vehicle manufacturer, the underlying issue was that people did not learn the necessary technical skills at universities. But an exhaust systems 1st tier queried whether appropriate training existed on new legislation or new emissions standards/needs. *“We don’t know of any”* they insisted. A vehicle manufacturer stated that although they were looking at what training to provide, they had found it impossible to buy a course ‘off-the-shelf.’ *“You have to adapt it to fit”* they asserted.

In certain other cases, recruitment or retention problems were an issue. A forgings SME stated, for instance, that it was *“...impossible to get good people for under £20,000 who are very experienced, with a knowledge of PPAPs.”* A vehicle manufacturer was also losing skilled people because they were mobile, and could get higher salaries elsewhere.

5.9 Changing skill needs for Systems and IT

5.9.1 Key competences and changing requirements

The complexity and importance of the role of Systems and IT personnel was reliant on the extent to which this function was located within the company, or whether this competence was outsourced to external consultants or other parts of the group. It also depended on how advanced the existing IT systems were. Some firms therefore reported little change occurring while others spoke of *“ongoing change as systems and IT changes,”* when systems were upgraded and new software installations were made. It was important that new systems were compliant with UK legislation and the data protection act, as well as those overseas where relevant (for example when a branch plant of a multinational group) (see Text Box 5.7, overleaf).

IT staff kept PC users up-to-date, and their supporting role covered the spectrum of IT uses including:

- Management reporting e.g. data handling.
- Electronic facets of production and engineering.
- Electronic transfer of designs/technical specifications to customers/suppliers.
- SAP (software to enable product manufacturing operational data to be tracked through the factory on materials/components).
- Materials Resource Planning.
- Email.
- Broadband, servers and network security.
- Internet purchasing.
- Supply chain logistics.

Their supporting role could also necessitate their technical authorship of IT and systems manuals, and an IT educational one for managers and employees. They needed appropriate qualifications and experience, as well as communication skills, and it was also important that they were not 'in the sky' as a 1st tier put it.

The contribution of IT to a business' implementation of lean principles was well understood, by helping to improve efficiency and eliminate waste through, for example, better stock control in reducing inventory levels. A 1st tier powertrain supplier commented: *"The whole system is being upgraded and we will have more accurate data to manage stock levels so we will be able to reduce stock levels, take out waste and improve efficiency."*

IT staff also had a more strategic role in relation to improving the firm's business competitiveness: through closer attention to high levels of customer service (e.g. through systems integration), similarly supplier development, and better aligned intra-group operations. One 1st tier also commented on the advisory role of their IT staff through advising the Board on IT strategy. So, increasingly, IT and Systems staff had an external orientation, both upwards and downwards through the supply chain, as well as horizontally. *"We will be able to liaise more with our international companies,"* noted the same 1st tier of their determination to enhance their efficiency.

Text Box 5.7: Key competences for Systems and IT

- Full understanding of the latest IT systems and software updates for engineering design/development, production and accounting/sales/billing, and warranty systems.
- Maintain lookout for incoming changes in IT and PC.
- Ensure that the IT system complies with UK law and data protection act and those relevant overseas (e.g. if the company is foreign-owned).
- Give operational support to internal divisions for IT and PC use, including electronic communications, servers, network security, data storage and access, stock control, internet purchasing. Important to understand users' needs e.g. of manufacturing.
- Act as technical authors when a new system/software is introduced through preparing manuals for workforce to use – IT educational role.
- May be required to act as group help-desk by overseas owned multinationals (so appropriate foreign language skill is important).
- Greater strategic focus due to emphasis on lean manufacture, improved customer service and supply chain development, so growing need to be more externally facing and involved with customers and suppliers, including for integrating/advising on their IT systems, and ensuring that own company's IT system will enable colleagues to meet customer requirements. This also places greater stress on communication and relationship skills.
- Advise the Board on IT strategy.

A vehicle manufacturer was obviously concerned with supply chain improvements in asserting of their IT staff:

"They cannot operate in isolation. They have to understand what their part is re the whole organisation and how they can make changes to a lean organisation and one that has a closer supply network. So they may become more supplier focused than customer focused and may have to provide this [operational support] to suppliers and simplify the IT systems for them."

5.9.2 Skill gaps

Such was the rate of technological change in IT and Systems that the most frequently cited skill gap was specifically in IT and PC skills, as highlighted by 7 firms overall (see Table 5.1, Table 5.9 and Appendix 6). This was particularly an issue for SMEs due to the investment they needed to make to keep up-to-date. One small firm had yet to install any IT at all and was clearly apprehensive about the upheaval it would entail. Another was particularly deficient in skills to look after their IT network. Two others had skill gaps relating to IT software and PC hardware knowledge across the entire company.

Table 5.9: The incidence of specific skill gaps in Systems and IT among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (4) of skill gaps |
|--|---|
| IT and PC skills | 1 |
| Management skills | 2 |
| Language skills | =3 |
| Communication skills | =3 |
| Personal and relationship skills | =3 |
| Customer contact and care skills | =3 |
| Process, technical and production skills | =3 |
| Team working skills | =4 |
| Technical [and design] skills | =4 |

Refer to Appendix 6.

The responsibility placed on IT staff in their supporting and strategic role underlay the concerns about inadequate management skills. The identification of language skill needs related to intra-group working by 2 vehicle manufacturers. In one of these, the Midlands based IT and Systems staff had responsibility for this function across the group's European plants.

Clearly, their support role in dealing with managers, employees, customers and suppliers underpinned the comments about gaps in communication skills, personal and relationship skills, and customer contact and care skills.

Additional limitations were raised in respect of IT used for appraisal training, and in possession of the necessary IT qualifications.

5.9.3 Underlying factors for tackling skill gaps

In some cases among suppliers skills gaps occurred because the technology had moved on to such an extent that the skills of existing staff were outdated. Clearly, the cost of training was the most significant factor (see Table 5.2, above, and Appendix 7). Indeed, it was even more problematic than finding the time to train.

Firms raised issues about both staff recruitment to source new skills, and the cost of training their existing employees. *"We have a mixture of people including very long serving and newer people, but we have not recently recruited to meet our current requirements"* revealed a 1st tier. *"It is difficult to keep up with changing technology due to the speed of change and the costs involved"* stated an SME prototypes and sheet metal worker.

5.10 Changing skill needs for Sales and Marketing

5.10.1 Key competences and changing requirements

Sales and Marketing staff were now operating in a more competitive global market. It was proving more difficult for both vehicle manufacturers and suppliers to make a sale, and they had to go about this more innovatively (see Text Box 5.8). A vehicle manufacturer commented:

"It is harder for them to make sales due to competition e.g. from the USA and Germans, and due to products lasting longer." The key factor was this: "They have to move with the times and keep up with technological advancements in the product."

Text Box 5.8: Key competences for Sales and Marketing

- Understand [global] markets; commercial awareness; competitor knowledge.
- Marketing and sales ability.
- Need to be more innovative to be able to sell in a more competitive market.

Develop strategic relationships with customers and identify potential for product differentiation. Identify market opportunities (possibly outside transport sector).

- Engage with the customer to provide good customer service. Communicate customer requirements to manufacturing to help them translate customer expectations into workable reality.
- (For vehicle manufacturers) relationships with dealer networks may/will change as the manufacturer develops a closer relationship with customers (end-users).
- Knowledge of product range and production process used by the company in order to explain technical features to customers; environmental knowledge.
- Exporting/shipping/logistics knowledge.
- Understanding of the financial implications of meeting customer requirements.
- Ability to negotiate the best price (so helping to increase/maintain margins).
- Smart appearance, articulate, ability to do presentations, to work in a team.
- IT literacy in order to access/maintain customer schedules, so customers can schedule their requirements online.

Keeping an eye on the global competition was vital in order to identify opportunities for product differentiation and so stand out in the market, communicating these prospects to manufacturing colleagues to translate into workable reality. Giving the customer more choice was a major element of competitive advantage. A 1st tier batteries supplier stressed that sales staff:

"...need to be more proactive towards forming strategic relationships with customers, identifying product differentiation and utilising new IT technology into the customer base so that customers can use online method to schedule their requirements."

It was crucial that suppliers' Sales personnel were still able to form close relationships with vehicle manufacturers. But a 1st tier engines suppliers commented how difficult it was for them to get contacts at the right level with vehicle manufacturers, saying: *"OEMs are not sure what small companies like us do."* An SME said that it was no longer possible to 'cold call.'

Several firms described how they were attracting the interest of customers. One small 1st tier wiring harnesses supplier tried to offer prototyping, support for the design stage and low cost country sourcing. They could also use their Euro hub as a way

of getting business (including sales/distribution) in Europe, the UK and US. Currently the hub consisted solely of one admin person, but had potential for operational expansion. They were optimistic about their further development of all this, saying: *"We may open up somewhere in the US and Asia if we are successful enough."* Their Sales Director was trying to get more work for their existing Far East plant in order to supply from there into the US and Far East/Asia. They had also formed a close relationship with their main customer who (they thought) was now reliant on them.

A forgings SME had realized that they needed to give a back-up service to their customers, e.g. design and aftersales support, because it was getting *"very aggressive in the marketplace."*

A machining and fabrications SME revealed that they tried to: *"...source contracts that we can set cells around, so are looking for long-term agreements with customers whereby we can build into the cost of setting the cell up and operating it for a specific customer."*

Among the vehicle manufacturers, two firms spoke of forming closer relationships with the customer (end-user) so that they could better recognize their needs, and so their links with their dealer networks would change.

Among the suppliers, so aggressive had the automotive industry become that some firms were actively trying to diversify within the transport sector more generally, or outside of it. Two 1st tiers were looking closely at focusing on the Sales and Distribution function rather than manufacture. An SME highlighted the need for Sales people to acquire knowledge of any new market sectors into which they diversified, and what was required in order to win business.

Sales people had a role in assisting their companies with cost reduction programmes by getting the best price they could from the customer in order to maximize (or at least to maintain) profit margins. This placed a great emphasis on their possession of good negotiation skills. It was also important that they understood the financial implications (in relation to increased/reduced production costs and therefore of margins) of any special requirements agreed with the customer. Further, they needed to have an understanding of the procedures and costs for exporting/shipping and logistics. Their possession of sound technical understanding of their company's production processes and product range was crucial, and environmental

knowledge was also needed. In most cases an engineering background was preferable, except where the Sales and Marketing function was largely the responsibility of group headquarters (overseas for some multinationals), or (in the case of one supplier), technical sales were conducted by each division, and a small Public Relations/marketing central team organized trade fairs and initial customer visits.

Attributes like smart appearance, the ability to do presentations, and to work in a team were all mentioned along with decision-making ability, preparing contracts, and a willingness to travel [overseas] to visit customers.

IT literacy was now mandatory where customer scheduling was done online, enabling customers to present their requirements electronically.

5.10.2 Skill gaps

Three limitations were most frequently noted among Sales and Marketing staff in:

- Language skills.
- Business planning and development, and
- Process, technical and production knowledge (see Tables 5.1, 5.10 and Appendix 6).

Table 5.10: The incidence of specific skill gaps in Sales and Marketing among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (5) of skill gaps |
|--|---|
| Language skills | 1 |
| Business planning and development skills | =2 |
| Process, technical and production skills | =2 |
| Customer contact and care skills | 3 |
| Leadership skills | 4 |
| Health and Safety skills | =5 |
| Management skills | =5 |
| Team working skills | =5 |
| Communication skills | =5 |
| Personal and relationship skills | =5 |
| Technical and design skills | =5 |

Refer to Appendix 6.

The greater globalization of vehicle manufacture and supply has accentuated any deficiencies in language skills. Despite the use of English as the language of international business, it can still be important to be able to do business in the customer's own language. As a batteries 1st tier asserted: *"They need language skills and a knowledge of European and overseas vehicle manufacturers in order to win business."*

Problems experienced in making sales in a more aggressively competitive market were behind the inadequacy noted in business development. The possession of technical knowledge of production processes and the product range was not strong enough in some Sales personnel.

It is important to bear in mind, too, that it is not only Sales staff that help to win business. For one SME machining and fabrications supplier it was the public relations acumen of their Manufacturing Operators that was lacking when they showed potential customers the plant when trying to source contracts to set cells around.

"The issue is the type of operator, their calibre" they pointed out: "It is their task to satisfy that customer, so the operator needs to be able to do PR for the customer when they visit and need to show they know their job inside out. There is an issue about delighting customers."

A range of other skill gaps identified among Sales and Marketing staff (see Appendix 6e) mainly relate to deal making, contracts, and financial arrangements, including at some distance:

- Financial skills were needed by a vehicle manufacturer, though training was to be given.
- Better sales skills were needed by a small 1st tier firm where the Purchasing Manager had taken over the Sales function.
- Negotiation skills, and the ability to clinch a deal, were highlighted by a 1st tier and an SME.
- One firm was concerned about how their website showcased the company.
- A conflict about pricing that existed in a 1st tier where Sales agreed the price but Operations had no possibility to influence the decision, probably occurred through Sales' lack of appreciation of the financial implications of manufacturing what was agreed with the customer.
- Inadequate awareness of the business environment was specified by a 1st tier.

5.10.3 Underlying factors for tackling skill gaps

There were no major issues for tackling inadequate skills among Sales and Marketing personnel. Although lack of time to train, and lack of the right experience, appear most frequently among the issues raised (see Table 5.2 and Appendix 7), each factor was only noted by 3 firms in all. Also recorded were issues about recruiting staff, and older workers with outdated skills. An SME stated, for example, that their Sales specialist needed upskilling in modern sales techniques. The cost of training, and the problem of keeping abreast of the fast pace of change, were also raised by suppliers.

Various other factors were noted, such as:

- A vehicle manufacturer's import/export specialist had left the company, and others were not yet up to speed.
- An organizational problem existed in the 1st tier where Sales and Operations were not in communication about pricing.
- The customer base was more sophisticated, stated a 1st tier, and Sales people were not sufficiently aware of this.
- The SME concerned about showcasing the company on their website believed that success was contingent on other systems being successful.

5.11 Changing skill needs for Finance and Administration

5.11.1 Key competences and changing requirements

Two skill levels were evident in Finance and Administration. At the higher level, possession of sound financial and accounting skills, and the appropriate professional qualifications (e.g. CIMA), were expected. At the lower level, basic office skills were necessary, including keeping records on sales and purchases, paying salaries, looking after emails, taking and making telephone calls (see Text Box 5.9, overleaf). In some cases, Purchasing and/or Human Resources functions were also part of the remit of this division.

The 'number crunching' facet of Finance's expertise was used in various ways, including the preparation of financial data for external agencies e.g. VAT, tax. Maintaining records was a major role of Finance and Administration, whether of the workforce (e.g. time sheets), customers (e.g. sales records) or goods purchased (purchasing ledgers). They also needed to have a knowledge of contractual procedures and preparation. An important task in one 1st tier (and presumably for others) was

their conversion of the marketing, sales and production data into business plans.

Increasing emphasis on the financial function was apparent for two main reasons:

1. The tightening financial regulations and controls on businesses, and
2. The pressure to reduce business costs.

Keeping pace with changing financial regulations was clearly crucial for Finance, and firms were particularly looking ahead to new legislation on accounting standards to be introduced in 2005. If a company is overseas-owned (the US was a case in point), Finance had to ensure that the company operated within the appropriate legislation of both countries. The Sarbanes Oxley legislation was highlighted for its requirement for financial and accounting transparency, to ensure financial traceability. This entailed: *"a massive cost to the business e.g. in time to implement it"* said one firm.

Offices where Finance, Administration and Human Resources were combined into one division seemed to be particularly weighed down by constantly implementing legislative changes because they had to deal with financial and accounting regulations, as well as those relating to employment, pensions and dismissal.

Text Box 5.9: Key competences for Finance and Administration

- Financial and accounting responsibility. May also include purchasing and/or Human Resources skills where departments incorporate these functions as well.
- Qualified in their field e.g. at senior level: Chartered Institute of Management Accounting (CIMA). Payroll staff may do Institute of Payroll and Pensions Management qualifications.
- Keep abreast of tightening financial regulations (UK and overseas/head office operations) including new ones on accounting standards (incoming in 2005), and operate within appropriate financial legislation.
- Keep financial data e.g. on VAT, tax.
- Manage capital (including investments); check for low interest rates, exchange rates; knowledge of the way the banks run.
- Understand all financial/commercial information on sales and purchases.

- Administrative responsibility: basic office skills e.g. photocopying, also collate time sheets, take/make phone calls, look after emails, keep records e.g. sales ledgers, pay salaries.
- Good knowledge of the customer base/supply chain re: goods renewal, contracts.
- Convert into a financial basis the figures on marketing, sales and production for inclusion into the business plans.
- Numeracy, for handling figures.
- IT literacy, including for invoicing, and self-billing by customers.
- Teamwork.
- Some growing expectation that financial/admin people need to improve their knowledge/experience of other functions, e.g. shopfloor, engineering.
- Ensure cost savings are made, so more financial reporting/accountability.
- Some appreciation that Finance has a contribution to make to helping to reduce costs for the customer e.g. in identifying costs savings in distribution and the cost/value of products.

IT literacy was increasingly important in Finance and Administration, not only for keeping records and statistical data, but also for online billing.

There was greater onus on Finance and Administration to help the business reduce costs.

There were various approaches to this task:

- By making everyone in the company aware of the cost implications of their decisions, and encouraging them to make do with less (this point made by a vehicle manufacturer).
- By outsourcing some financial and administrative work, as one 1st tier was intending to do.
- Keeping track of investment opportunities, and where preferential interest rates were offered.

An SME was adamant that they needed to “work smarter.” They were clearly envisaging changing contractual arrangements with their suppliers in order to give themselves investment potential, and stated: “How we manage capital has to change. For example, if we outsource £7 million of work but

pay that supplier when they supply the finished goods we can inject £7 million into our business in the meantime.”

Keeping a close watch on the wages bill, an electronics 1st tier was certainly considering manufacturing overseas (they were not the only firm to air this possibility), and commented: “If the wages bill goes too high we may have to have a Far East manufacturing plant.”

One 1st tier had also recognized that Finance and Administration had a part to play in enabling the company to provide good customer service to vehicle manufacturers by helping them to reduce their costs, firstly by identifying cost savings in distribution, and secondly, in the cost of products themselves. “They must become more proactive with the customer base” they said.

Indeed, a small but perhaps growing trend was discernible in the greater integration of Finance and Administration into the organization. A 1st tier glazing systems supplier asserted, for example: “They need a greater business focus. Traditionally they have been focused on figures. Now they need greater awareness of what is happening on the shopfloor.”

For one vehicle manufacturer focused on implementing lean manufacture, and moving towards becoming a matrix organisation during 2005, profound changes were anticipated in the way finance and accounting people operated:

“We recognise that people have operated in silos and we need them to move out of their silos. The organisation is moving to be a matrix organisation. This is highly complex. We will implement this in 2005 as part of our supply chain and technical processes. The changes introduced will give finance/accounting people time on the shopfloor and to engineering systems and eventually they will be held to greater account for management within the rules of the operation.”

They were aware that it would not be straightforward for the company to become a matrix organisation due to the complexity involved, and the functional integration that would occur: “Issues are: 1) people must recognise it is a matrix organisation, 2) people are not capable of maintaining it as a matrix organisation.” A third operational issue concerned suppliers: “Suppliers will realise it is changing because they will become an integrated part of the organisation.” The implication of this comment is that for Finance and Administration, as well as other functions, the relationship with suppliers would change.

5.11.2 Skill gaps

Limited IT and PC skills comprised the main issue for Finance and Administration, as this was highlighted by 7 firms overall (see Tables 5.1, 5.11 and Appendix 6). It was particularly an issue for the SMEs among the survey participants. Indeed, for them, it was the only real inadequacy among Financial and Administrative staff.

Table 5.11: The incidence of specific skill gaps in Finance and Administration among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (4) of skill gaps |
|--|---|
| IT and PC skills | 1 |
| Communication skills | =2 |
| Business planning and development | =2 |
| Management skills | =3 |
| Team working skills | =3 |
| Language skills | =3 |
| Personal and relationship skills | =3 |
| Process, technical and production skills | =3 |
| Leadership skills | =4 |
| Customer contact and care skills | =4 |

Refer to Appendix 6.

Vehicle manufacturers, in particular, indicated that various other inadequacies existed in a minor way. Among these, communication skill needs were slightly more pressing. The range of concerns included other 'soft' skills like personal and relationship skills, and team working. A need for better business planning and development skills was also indicated, as well as their lack of process knowledge. Management skills, and languages ability were also mentioned. Customer contact and care skills, as well as leadership skills, just crept onto the list of gaps.

Various other skill gaps were reported (see Appendix 6e):

- Two firms were concerned that staff were lacking in their knowledge of the new financial legislation, or of changing legislation more generally.
- A need for higher competence in accountancy and billing was identified by a vehicle manufacturer as well as a 1st tier.
- An issue about Human Resources knowledge was noted by a 1st tier's staff.
- Another 1st tier looked for greater ability in report writing and presentations.

5.11.3 Underlying factors for tackling skill gaps

The main underlying factor was that some key staff were lacking in experience, as mentioned by 4 firms among the vehicle manufacturers and 1st tiers (see Table 5.2, above, and Appendix 7). Two were quick to assure that they had the problem in hand and staff were being trained, for example in accountancy and human resources management. Another saw that their staff would grow into the job through gaining hands-on experience.

Problems in finding the time to train, and keeping abreast of change were slightly more prominent among the range of other factors overall. In one case, a 1st tier had just introduced new systems, and Finance and Administration had clearly not yet become accustomed to them. Constant changes in legislation were also a factor, as noted above.

In two firms (a vehicle manufacturer and a 1st tier) issues arose due to the culture of the organization. The effect was evident in poor communication and leadership skills.

A glazing systems 1st tier spoke of the "spotlight on cost control" which had emphasized the skill gap in business planning and development. "It has never been that way before (for them)," they admitted: "They need to understand what they are doing, and the reason for the increase in pressure."

In their determination to reduce costs, one SME had pared their workforce down so much that they hardly had enough people to carry out the necessary day-to-day tasks: "We are struggling to find human resources to do jobs in the office, we have become so lean" they stated. Their inability to pay the high salaries people expected had prevented them from recruiting.

5.12 Changing skill needs for Human Resources

5.12.1 Key competences and changing requirements

In some cases, no separate Human Resources division existed at all, not just in the SMEs, but also within two vehicle manufacturers and a 1st tier. One vehicle manufacturer combined HR with other functions, with Finance and Administration and Purchasing. It could also be found combined with Training, or located within individual divisions. In small firms it was generally the responsibility of the firm's Senior Management, if no HR person was in post. Some intention was voiced about outsourcing some of the HR function, a seatings 1st tier mentioning the possibility of a stand-alone call centre-type operation on their site for recruitment and disciplinary procedures.

The workload of Human Resources staff has increased with the weight of ever-changing legislation on all aspects of employment, such as Employment Law, Health and Safety, and dismissal procedures (see Text Box 5.10, overleaf). One SME described legislation as *"a minefield"*, a sentiment which seemed to be shared more widely. It must be particularly onerous and difficult in firms where Senior Managers multi-task. It is necessary both to keep track of the appropriate legislation, as well as implementing the necessary changes to company policies and working practices. For example, under Health and Safety it must be ensured that Manufacturing Operators do not exceed the maximum working hours allowed. The working environment must also be a safe one. *"The costs of not getting it right are high re poor employee relations and higher cost to the company"* said one 1st tier. They also believed there was now a culture in the UK of personal injury claims, saying: *"People's behaviour has changed, so we have more focus on 'loss prevention.'"*

So onerous was the Health and Safety and environmental role, that one SME had an individual who was solely engaged in this work. They were expected to keep themselves informed of legislative changes, but also to liaise with outside bodies such as the Engineering Employers Federation. The driver was Land Rover's requirement that all suppliers were environmentally compliant and had ISO 14001.

Text Box 5.10: Key competences for Human Resources

- Keeping pace with, and implementing, appropriate legislation relating to human resources (e.g. Employment Law, dismissal procedures, Health and Safety, working hours), and the necessary changes in policies and working practices.
- Responsible for employee relations, so 'soft' skills are important.
- Understand the company's skills and personnel requirements.
- Recruitment, dismissal, general personnel matters, and associated records and paperwork.
- Employee discipline, and administration of this; handling grievances, compensation (though legal advice may be outsourced).
- Understand the company's skills and personnel requirements.
- Responsible for workforce development and learning, sourcing trainers, unless handled by a separate Training division, or by individual divisions (see under Training section).
- Increasing use and development of electronic means of managing people, e.g. employee records i.e. e-HR, so IT skills are needed.
- Some indication of a more strategic role, working with Senior Management and/or Manufacturing and Logistics divisions in an advisory/business planning capacity, so need to have an understanding of the business plan.

The traditional role of Human Resources staff is that of 'hiring and firing', handling disciplinary procedures, and personal injury claims. Possession of the 'soft' skills is also vital in their role. One 1st tier described their role as: *"Efficiency with a human face."* An SME was conscious that they could do a lot more in relation to soft issues, for example by involving people: *"This leads to job satisfaction"* they said. The greater employee-centred approach they proposed would involve flexible working patterns to suit individuals.

Human Resources are also responsible for employee records, and the use of electronic data storage and manipulation means that good IT and PC skills are needed. A vehicle manufacturer described the use and development of electronic means of managing people as 'e-HR'.

In recruiting, it is the Human Resources department's responsibility to find suitable people. One vehicle manufacturer was especially vociferous about the problems they encountered, and the historical and current reasons for these:

"Human Resources must have an understanding of the current market for the availability of people and knowledge of our requirements and the cost of acquiring that knowledge. They need to recognise the impact of educational systems on the availability of people e.g. the skill shortage in traditional craft (+ maintenance) and people at degree level due to the reduction in manufacturing/engineers coming out of universities. And due to the policies of the conservatives on apprentices in manufacturing we are not training people to replace them. Also, children today are not good at, and are not trained in, creative problem solving. We need art and music, i.e. creativity, on the school syllabus." [Imagineering was mentioned in passing] "And communication skills are also important. This is a challenge for HR as they have the task of finding people from an ever-reducing pool of available people. In the auto industry it is particularly difficult."

A further key facet of the Human Resources workload is workforce development and learning (see section 7 on Training). There were some indications – possibly a growing trend – for a higher profile role for Human Resources staff among 1st tier suppliers, in recognition that they could contribute strategically to business planning and development. A glazing 1st tier stated:

"We've moved on from the days of just hiring and firing people. We are now the 'right hand man' to the plant manager...We are [also] becoming business partners with Manufacturing and Logistics guys to understand key business performance indicators and pressures on the plant."

Getting the right skill set in place to enable the company to achieve its objectives was behind the comments of another 1st tier, an engines supplier, who said:

"Expectations from the senior level have increased of what we have to deliver. HR should contribute more to the business e.g. have a development role. They realize the company has not had the right skills/people in the business. Now our managers and directors want our input to this."

An SME also noted that HR needed to know about the business and planning, as well as training, because performance and training appraisals were linked into the business plan.

5.12.2 Skill gaps

No major areas of deficiency were noted by Human Resources staff (who were usually the survey respondents) of their own and immediate colleagues' competency levels, though some limitations were identified across a wide range of skills – but virtually none by the SMEs (see Tables 5.1, above, 5.12, overleaf, and Appendix 6).

Given the prominence of 'soft skills' among the competences that were needed to do their jobs, it is surprising to find communication skills, team working and personal and relationship skills among the skill gaps. It may be a sign of the growing emphasis on the need for good employee relations in order to 'engage' and motivate them, but also perhaps in dealing sensitively with the downsizing of workforces as a part of cost cutting. Chief among the skill gaps, though, is leadership skills, and this arises through the responsibility of Human Resources for employee welfare. *"We are the conscience of the organization"* said one 1st tier. *"We have to be champions of Health and Safety"* said another. A third noted that they needed to have *"...leadership in this in having the right influence to make a difference."*

Business planning and development also appear among the skill gaps. Process, technical and production knowledge could be higher, too.

Table 5.12: The incidence of specific skill gaps in Human Resources among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (4) of skill gaps |
|--|---|
| Leadership skills | =1 |
| Communication skills | =1 |
| Health and Safety skills | =2 |
| Personal and relationship skills | =2 |
| Business planning and development | =2 |
| Management skills | =3 |
| Team working skills | =3 |
| IT and PC skills | =3 |
| Process, technical and production skills | =3 |
| Language skills | 4 |

Refer to Appendix 6.

The inclusion of IT and PC skills reflects the increased use of electronic data storage and manipulation, as well as for training (see section 5.13).

A range of other skill gaps was mentioned, mainly by the 1st tiers (see Appendix 6e). These additional limitations mainly concerned the need for a better knowledge of legislation, particularly Employment Law, or the need to acquire professional skills in Human Resources where staff had no formal qualifications. One 1st tier thought they needed counselling skills. Another considered that a knowledge of best practice in their field would be useful.

5.12.3 Underlying factors for tackling skill gaps

Issues raised about the lack of professional skills in Human Resources are behind the prominence among the underlying factors of a lack of the right experience (see Table 5.2 and Appendix 7). One 1st tier, for example, stated that their young, inexperienced team needed time to learn all the skills they needed. The lack of professional qualifications was raised by two others.

Comments about constant changes incurred by new legislation are echoed in the inability to keep pace with the fast pace of change.

For one of the 1st tiers, their changing role in the company, and being 'right hand man' to the plant manager, had accentuated some limitations in leadership and team working skills because, they revealed: *"We must now challenge senior execs as to why they are not doing things properly."*

The cost of training, and lack of time were also deterrents to resolving skill gaps, to some extent.

Virtually no issues were raised by the SMEs, other than lack of experience.

5.13 Changing skill needs for Training staff

5.13.1 Key competences and changing requirements

The training function was frequently located within the Human Resources division, and in many instances was covered by the same staff. In some firms (notably SMEs), training responsibility was held by multi-functional individuals.

The role of Training staff was often one of analysis and appraisal, organization and co-ordination rather than of training provision (see Text Box 5.11), since it was impossible for one or two staff to possess all of the competences necessary to cover the whole range of training needs.

Text Box 5.11: Key competences for Training staff

- Training needs analyses, training plans, performance appraisals.
- Translate business performance/competency requirements into training provision.
- Be aware of changing concepts of best practice in training.
- Keep records of skills, gaps, and training.
- In some firms, need to possess sufficient technical expertise to deliver some training programmes (so need process knowledge); in others, co-ordination rather than delivery.
- Knowledge of where to find/access suitable training; organising external learning and training, internal courses, providers and consultants to deliver training.
- Organise and set up apprenticeship training, and monitor this, dealing with the problems of apprentices (unless apprenticeship training was outsourced, e.g. to the Engineering Employers Federation).
- Knowledge of qualifications, changes to these.
- IT skills for maintaining records, plans etc; also for training purposes: e-learning.

It was important that the Training arm kept themselves adequately skilled in those competences that were considered core for individual firms, or when new technology or processes came into operation (if their role was as a technical trainer). One vehicle manufacturer highlighted the current drivers for skill and training needs in relation to Employment Law, Health and Safety Law, and the move towards electro/hydraulic systems, various quality systems and processes, environmental management, and the improvement of their developing lean systems.

It was commonplace for some technical training to be conducted in-house. For example, in one case an SME's Toolroom Manager doubled as the Training Manager. In a 1st tier, the Training Manager was supported by the Quality Manager to deliver quality and technical training. But there

seemed a trend towards placing technical training with specialist providers. An SME commented that they carried out training on basic production skills, while: *“Increasingly, technical training at advanced level is carried out by providers.”* There were also some signs that in-house technical training was falling by the wayside because functional staff were too tied up with dealing with their changing workload. A 1st tier said that their Quality department was currently: *“too stretched”* to take on any quality or technical training on the manufacturing process as they had formerly done. Another 1st tier commented that they were *“very busy, always.”* One SME’s Toolroom Manager was just too frantically busy even to stop and talk about training.

Where apprenticeships were pursued in-house, the task was considerable. The Training Manager in one vehicle manufacturer had to: *“Organise and set up training for apprentices, organise external providers, organise timetables for trainees, deal with the personal problems of trainees, interview apprentices, deal with discipline problems.”* The workload had expanded because they now had 13 instead of the 1 or 2 they used to have. On top of that, they had to keep up to speed with qualifications and changes to these, keep records on the company’s skill base and shortfalls, e.g. on new processes.

A 1st tier powertrain supplier had moved the first year of their apprenticeship training to the Engineering Employers Federation training centre. They had now identified a new role for those Training staff, on leadership and management development (evidently through providers).

Locating and organizing appropriate external training provision was a major part of the trainer’s role, whether this was done at or by colleges or universities, commercial providers and consultants, or specialist bodies such as trade organizations. Training records had to be kept.

There was very little mention of the need for competence in e-learning, apart from one vehicle manufacturer who described this as: *“...becoming a significant training tool.”* E-learning was being extended to include not just ‘soft’ skills but also language skills. Bookings for training courses were also done online.

5.13.2 Skill gaps

A variety of skill gaps were reported, mainly among the vehicle manufacturers (see Tables 5.1, above, 5.13, overleaf, and Appendix 6). Most prominent were inadequacies in:

- Communication skills, as well as other ‘soft’ skills like personal and relationship skills, and team working.
- Process, technical and production skills, and
- IT and PC skills.

One 1st tier stressed the importance of Training staff having process knowledge: *“They need to keep themselves up-to-date in order to train the production people as well”* they said.

Table 5.13: The incidence of specific skill gaps in Training staff among vehicle manufacturers, 1st tiers and SMEs combined.

| Skill gaps | Highest incidence (1) to lowest incidence (4) of skill gaps |
|--|---|
| Communication skills | =1 |
| Process, technical and production skills | =1 |
| IT and PC skills | 2 |
| Basic skills | =3 |
| Leadership skills | =4 |
| Management skills | =4 |
| Team working skills | =4 |
| Language skills | =4 |
| Personal and relationship skills | =4 |
| Business planning and development | =4 |
| Technical [and design] skills | =4 |

Refer to Appendix 6.

A need for better leadership skills and management skills each received a single mention.

Language skill needs were mentioned by one overseas-owned firm.

Additional competences required of Training staff were identified by vehicle manufacturers and 1st tiers as:

- A knowledge of e-learning (see Appendix 6e).
- A knowledge of NVQ syllabuses and training (needed by one vehicle manufacturer).
- Methods for evaluating training needs.
- Improved skills in delivering training: *"I need to learn the skills to train others"* admitted one 1st tier trainer.
- The knowledge to source appropriate courses.

The internet was used to find courses and providers, but a 1st tier exhaust systems supplier queried: *"Are there courses out there to find?"*

5.13.3 Underlying factors for tackling skill gaps

Ironically, lack of time to train was the key issue preventing Training staff from solving their skill needs, as mentioned by about one quarter (6) of the survey participants. Difficulties in keeping in step with the pace of change, the lack of the right experience, and having outdated skills (and therefore the need to upskill) were of a lower order of importance. Various other issues were raised by individual firms, including:

- Staff recruitment and retention issues.
- The lack of suitable training available (or, at least, the inability to find an appropriate course on Employment Legislation) and
- The cost of training.

For one 1st tier, the recruitment issue related to a gap in the competences and/or time of existing staff in delivering training in leadership development. This was doubly difficult because it coincided with the firm's current downsizing.

This discussion of changing competences, skill gaps and the underlying factors for tackling these has gone into considerable detail in order to present the discrete issues for each occupational group. The next section (6) continues the focus on skill needs but from a different vantage point, focusing on leadership and management development.