In the Know:

Reward and Performance Management of Knowledge Workers

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1. Introduction

'The centre of gravity in employment is moving fast from manual and clerical workers to knowledge workers who resist the command-and-control model that business took from the military 100 years ago.'

Drucker 1988

Spectacular advances in information and communication tech–nology (ICT), the increased speed of scientific and technological progress, heightened global competition and changing consumer behaviour have combined to produce the knowledge-driven economy. It is a system in which the generation and exploitation of knowledge play the predominant role in wealth creation. The shift from the industrial- to the knowledge-based economy has been accompanied by the rise of the knowledge worker.

Though there has been much written about knowledge work and knowledge workers there is no commonly agreed definition of either. However, there is general agreement that whatever definition is applied –- and they range from occupational and industrial categories to wider educational and role classifications — the number of such workers is on the increase. As their number has mushroomed so the effective use of knowledge has become the principle way of differentiating performance.

Knowledge workers are the key to organisational success, because traditional sources of competitive advantage, such as quality, technology and economies of scale are no longer enough in the knowledge-driven economy. Sustainable competitive advantage now rests on a skilled and motivated workforce. Vacuum cleaner manufacturer Dyson illustrates this shift. When the company shifted its manufacturing operation to Malaysia, 550 production workers lost their jobs at its Malmesbury plant. Now there are more people than ever before employed at the site and the vast majority are in higher skilled, better-paid jobs. Most are scientists and engineers doing research and development work.

Some commentators describe knowledge workers as a new breed of employee that requires different management approaches and organisational structures to replace the traditional command-and-control supervision and rigid, hierarchical and status-based systems. Developing, sharing and retaining knowledge in organ–isations is crucial and requires its own distinctive psychological

contract to motivate the knowledge workers. HR has a central role to play in designing appropriate performance management systems, remuneration packages and recruitment strategies, as well as helping to shape the organisational culture that will attract and retain knowledge workers.

2. Who are the knowledge workers?

2.1 Overview

There is no common definition of a knowledge worker. Definitions range from key workers, who tend to be well educated and highly skilled, to any employee working with knowledge. The term 'knowledge worker' was originally coined by Peter Drucker to describe someone who, 'by virtue of his position or knowledge, is responsible for a contribution that materially affects the capacity of the organisation to perform and to obtain results' (2002). Drucker later defined it as someone 'who knows more about his or her job than anyone else in the organisation' (1998).

Knowledge workers can also be defined by characteristics and job satisfaction needs that differentiate them from other groups of workers. The characteristics of knowledge workers include placing their profession ahead of their employing organisation. Such workers tend to be equally or more motivated by non-financial rewards, such as peer recognition and praise, and opportunities for continuous learning and development, than purely financial incentives. They desire challenging work, with the freedom to make mistakes, and they work best as individuals without supervision or in autonomous groups.

2.2 Definitions

Despite the term having been in existence for more than 30 years, there are several competing definitions of a knowledge worker. Most are linked either to occupation or to industry/sector or both. The CIPD (2002), for example, lists the following two approaches:

- Specific occupations involving knowledge work — these include research and development, advertising, education and professional services, such as the law, accountancy and consultancy. For example, Reich (1991) classifies knowledge workers as: 'problem solvers' (for example, researchers and developers); 'problem identifiers' (for example, people working in advertising; and 'problem brokers'.

- Knowledge-based industries and sectors – these include high-tech industries, such as aerospace, computer and office

equipment, communications equipment and pharmaceuticals; and knowledge-based services, such as telecoms, computer and information services, finance and insurance, education and health.

Several studies reinforce the view that knowledge workers are either defined by their occupation or by the industry in which they work. Kidd (1994) identifies knowledge workers as being in the following job functions: design, advertising, marketing, management consultancy, broadcasting, law, finance and research. Similarly, Nomikos (1989) classifies them as a group that includes 'scientists, engineers, professors, attorneys, physicians and accountants', while Alvesson (1995) describes the workers in knowledge intensive organisations, such as accounting firms, management, engineering and computer consultancy companies, advertising agencies, R&D units and high-tech companies, as being well educated and qualified employees, and forming the major part of the workforce.

Sveiby (1997) takes the industry approach, equating knowledge workers with knowledge organisations or companies, and citing computer software giant Microsoft and global advertising firm Saatchi and Saatchi as examples of such enterprises.

> *'Most employees of knowledge companies are highly qualified and highly educated professionals – that is, they are knowledge workers. Their work consists largely of converting information to knowledge, using their own competencies for the most part, sometimes with the assistance of suppliers of information or specialised knowledge.'*

Other studies have adopted a wider definition. Lowe (2002) defines knowledge workers as all those with a university degree, while Tomlinson (1999) says they comprise all workers in Standard Occupational Classification (SOC) groups one to three, which now consist of:

1. Managers and senior officials

2. Professional occupations

3. Associate professional and technical occupations.

The latest official statistics indicate that at the end of 2003 40 per cent of the UK workforce was employed in these three occupational categories.

It has been suggested that the shift to a knowledge-based economy requires a broader definition of a knowledge worker, so the term should cover all individuals whose work is knowledge- and information-based and who interact daily with sophisticated technology and information systems. The CIPD (2004), for example, refers to 'professional' knowledge workers as employees whose jobs require high levels of knowledge input in a non-routinised manner and where subsequent output results in a product or service within which their knowledge is embedded.

2.3 How do they differ from other workers?

Despres and Hiltrop (1995), in their article, 'Human resource management in the knowledge age: current practice and perspectives on the future', say that knowledge workers differ from other workers because they:

> *'Manipulate and orchestrate symbols and concepts, identify more strongly with their peers and professions than their organisations, have more rapid skill obsolescence and are more critical to the long-term success of the organisation.'*

In addition to the tendency for knowledge workers to identify more with their profession than their workplace or organisation, there are several other characteristics that distinguish them from other groups of workers. These include being:

- highly mobile and quick to change jobs
- driven by accomplishment
- sensitive to peer-group assessment and praise
- responsive to being 'pulled' rather than being 'pushed'
- part of a network of peers, both inside and outside the organisation.

Doctors in IES conducted surveys of London Trusts found they exhibited somewhat different characteristics compared with their fellow employees. They had less affiliation to the Trust than others, no doubt because they are more mobile, and as attached to their profession, as much as or more than, to their employer. Job satisfaction was rated higher than by other workers in what led to feelings of engagement.

Unlike some groups of workers, knowledge workers tend to get job satisfaction from:

- challenging work
- continuous training and coaching
- tangible results
- organisational values or mission that mirror their own.

Specifically, Gummesson (2000) says knowledge workers are distinguishable from other groups of workers because:

> *'A significant proportion of [their] activities consist of problem solving and non-standardised production but routine handicraft is also necess–ary; production of interesting and novel ideas, approaches, solutions and recommendations; strong reliance on the individual and a high degree of independence and integrity; creativity, both individually and in the organised setting; and ability to communicate the results to selected audiences.'*

The CIPD (2004) says 'professional' knowledge workers have specific characteristics, namely that they:

- need to apply highly structured technical knowledge to ambiguous client demands

- work in autonomous fashion within fluid leadership structures

- are normally ambitious and upwardly mobile, and their key focus is the development of their careers.

Amar (2002) also claims knowledge workers place a greater priority on individual goals than group goals. He says knowledge workers are a 'new kind of employee paid not to create, produce or manage a tangible product or service, but rather to gather, develop, process and apply information.' According to Kelley (1990), knowledge workers are recruited for their 'problem solving abilities, creativity, talent and intelligence', while Whicker and Andrews (2004) say such workers are 'employed for their ability to think for themselves and their work involves a high degree of autonomy.'

Sveiby (1997) believes that knowledge workers, whom he describes as experts, focus on their jobs and their professions, subordinating everything to the task in hand and organising themselves into professional associations. He also claims they dislike routine and will try new ways of solving a problem rather than use the same approach as they did last time. To summarise, Sveiby says knowledge workers like:

- complex problems

- new advances in their profession

- freedom to seek solutions

Table 1: Main characteristics of knowledge work as defined by the literature review

No/rating	Primary characteristics of knowledge work	Characteristics stated in Collins (1998)	Characteristics stated in Kidd (1994)	Characteristics stated in Kelloway and Barling (2000)	Total no. of distinct authors stating characteristic
1	Commitment	✓	✓	✓	12
2	Profession	✓	✓	✓	8
3	Application of knowledge	✓	✓	✓	7
4	New breed/class	✓	✓	✓	7
5	Continuous self-development		✓	✓	6
6	Creating new knowledge	✓	✓	✓	6
7	Finding existing knowledge	✓	✓	✓	6
8	Credentials		✓	✓	5
9	External controls	✓		✓	5
10	Knowledge sharing		✓	✓	5
11	Social interaction	✓	✓	✓	5

Source: Yau (2003)

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- well-equipped and funded facilities

- public recognition of their achievements.

A summary of knowledge workers' common traits was developed following an review of the main literature on the topic (Table 1).

This review leads one to ask whether knowledge workers are different from other workers such that organisations should treat them differently and, if so, in what ways? We will come back to this question in Section 4.

3. Why are knowledge workers important?

3.1 Overview

There are several reasons why knowledge work and knowledge workers are considered to be increasingly important by employers. Knowledge is now seen as a critical asset for organisations and knowledge work is increasingly regarded as an important contri‐buting factor to business survival and success. The shift from an industrial- to a mainly service- or knowledge-based economy –– so-called post-industrialisation –– means that many organisations are more reliant on their workers and their unique capabilities to succeed than on machines and the speed of the production line.

This has led to *intangible* assets such as people displacing *tangible* assets such as machinery as the basis for competitive advantage: a firm's knowledge base is now regarded as its unique capability that cannot be imitated. At the same time, there is a greater understanding of knowledge and the importance of the need to exploit for organisational benefit the knowledge possessed by individual employees –– that is, tacit knowledge (see below) –– but it is not captured by employers. Knowledge workers are also becoming vital cogs in many businesses because they tend to possess the innovative and creative capabilities to develop new and improved products and services.

The CIPD (2002) says that managing knowledge and knowledge workers is all-important for the following main reasons:

- The current economy is characterised by an increased proportion of knowledge workers.
- Knowledge is an increasingly important source of sustainable competitive advantage because of the difficulties competitors face emulating such an 'opaque' source of advantage.

A survey of 423 organisations by KPMG Consulting (2000) found that organisations with systems in place to manage knowledge reported considerable benefits. More than three-quarters (79 per cent) of organisations claimed that knowledge management was playing an 'extremely significant' or 'significant' role in improving competitive advantage, while 72 per cent said it had a similar impact on customer focus. A sizeable proportion of those polled

also reported improved product innovation (64 per cent) and revenue growth and profit (63 per cent).

3.1.1 Post-industrialisation

> *'Knowledge-based entities are fast becoming the engines of economic growth as we evolve from the industrial era to the information age where knowledge and intellectual capabilities are the critical competitive differentiators.'*
>
> Bahrami and Evans 1997

The decline in most developed countries of manufacturing industry and associated employment has led some commentators to suggest that these nations are entering a new, post-industrial phase of evolution. It is a shift to a predominantly service-based economy, and from mainly 'blue collar' jobs to 'white collar' jobs. The growth of professional, scientific and technician groups of workers mark the post-industrial age.

According to IRS (2000) the old industrial economy has been replaced by one in which the value of the work that people do and the value of the products and services firms sell rests more on knowledge – that is how an organisation exploits what it knows about its customers, its marketplace and how it operates to be more effective and responsive to the competition.

3.1.2 Intangible assets

Underpinning the view that knowledge is the difference between business success and failure is the belief that the knowledge of the workforce comprises an organisation's knowledge base, which in turn represents the firm's 'intellectual capital' or the majority of its intangible assets. Companies in sectors as diverse as retailing, finance and tourism are increasingly dependent on the ideas and creativity of their staff for success. Intangibles have displaced tangible resources –- land, machinery, stock etc –- as the most valuable assets. A growing number of organisations now rely almost exclusively on their human capital –- the knowledge and skills of their employees –- to gain a competitive advantage.

The view that assets, such as workers and their knowledge, is now the key to competitive advantage was initially fuelled by studies showing that the market value of primarily knowledge-based companies is much greater than firms in other sectors because of their intangible assets. In his 1997 book, *The new organisational wealth: managing and measuring knowledge-based assets*, Sveiby posed the question: why is Microsoft's market value ten times its book value (in 1995, its shares were being traded at $70 against a book value of $7), while shares in firms, such as Ford and Bethlehem Steel trade close to their book value? According to Sveiby, the answer lies in Microsoft's intangible assets, which are primarily its people.

Successful knowledge-intensive companies secure competitive advantage through their intellectual and social capital (that is, the knowledge and skills of individual employees and the relationships between these employees), which make up their unique trading assets. Kaplan and Norton (1996), originators of the 'balanced scorecard' approach to measuring corporate performance, believe that a company with strong intangible asset base is better able to:

● develop customer relationships that retain the loyalty of existing customers and enable new customers segments and market areas to be served effectively and efficiently

● introduce innovative products and services desired by targeted customer segments

● produce customised high-quality products and services at low cost and with short lead times

● mobilise employee skills and motivation for continuous improvement in process capabilities, quality and response times

● deploy information technology, databases and systems.

3.1.3 Innovation and creativity

Organisations tend to value knowledge workers for their diversity. This means that a group of knowledge workers faced with the same problem, for example, will use their own internal knowledge and experience to each come up with different solutions and ideas to solve it. The specific roles that knowledge workers play in organisations, and the way they behave also make them valuable assets. As Rogoski (1999) explains:

> *'their main value to an organisation is their ability to gather and analyse information and make decisions that will benefit the company. They are able to work collaboratively with and learn from each other; they are willing to take risks, expecting to learn from their mistakes rather than be criticised for them.'*

Indeed, knowledge workers are often highly regarded by employers for their innovation and creativity, as these are both considered important elements in an organisation's ability to survive and prosper in an increasingly competitive and fast-changing environment. In private industry, innovation and creativity are needed to bring new or improved products and services to the market, while there is greater need for public sector employees to be innovative and creative as the government seeks significant improvements and change in the delivery of public services.

3.1.4 'Tacit' knowledge

The growing understanding that knowledge is a valuable business asset has been accompanied by the realisation that employees tend to possess knowledge that is rarely 'captured' in a meaningful

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way by the employer. This kind of knowledge is described as 'tacit' knowledge and includes intuition, insights, know-how and experience. It contrasts with 'explicit' knowledge, which resides in documents, technology and practices, and in organisations' systems, procedures and work structures. The CIPD (2002) distinguishes between the two in the following way:

- Explicit knowledge is 'knowing about': it can be written down, and once articulated is fairly easy to transfer.

- Tacit (or implicit) knowledge is 'knowing how': it is embodied in people and in the routines that govern their working relationships with colleagues and customers, and is difficult to transfer, often only revealed through application, practice and social interaction.

> IRS (2000) reports an analogy of a kitchen that was adopted by the chief knowledge manager at BT Global to illustrate the importance of tacit knowledge:
>
> 'A person could have the best possibly equipped kitchen, all the necessary gadgets and recipe books (the information or explicit knowledge) and cook an adequate meal. Put a top chef in the same situation and the result will adequately better, and that's where the tacit knowledge comes in.'

According to the CIPD, tacit knowledge has greater potential for creating strategic value and will become more and more important the more knowledge-intensive a business becomes and more it relies of its employees to gain competitive advantage. Capturing, exploiting, sharing or, at least, not losing the tacit knowledge that people possess has therefore become a key business objective as organisations seek to differentiate themselves from competitors. The government's white paper, *Our competitive future: building the knowledge-driven economy,* calls on organisations to 'identify, capture and market the knowledge base that drives all products and services' (DTI, 1998).

4. Managing knowledge workers

4.1 Overview

The specific traits and needs of knowledge workers require management interventions, HR policies and practices, and a workplace environment that will support and encourage them to use and share their knowledge for the benefit of the organisation.

HR can encourage a 'knowledge culture' by designing performance management systems that support the use and transfer of knowledge, and competency frameworks that include knowledge behaviours. HR is also central to building the psychological contract that will help recruit and retain knowledge workers. This can include a compensation and benefits package that rewards contribution and recognises achievements, learning and develop–ment opportunities that ensure knowledge workers maintain the value, and replenish their stock, of knowledge and an organis–ational structure that fosters teamwork and employee involvement in the decision-making process.

Newell (2000) has identified six key requirements that are needed to effectively manage technical professionals or knowledge workers and that an effective HR strategy needs in order to address them:

1. **Autonomy** – A high level of control over how they work (pace, conditions, working environment, significant input into decision-making processes and a leadership style that gives them as much independence as possible.

2. **Achievement** – The opportunity to put their highly developed skills and knowledge to best use is vital. They are motivated by the chance to achieve goals, which must be clearly aligned with key business objectives to maximize their commitment and performance.

3. **Keeping up to date** – Talented and highly trained staff fear that their skills will become obsolete. They must remain at the technological cutting edge of their profession. Failure to use skills can bring burnout, apathy and alienation.

4. **Professional identification** – They usually identify first with their specialist profession and then with their employer.

5. **Participation in missions and goals** – Involve them in decision-making and goal setting. Ensure that the pursuit of their professional goals can be aligned with the strategy and objectives of the business.

6. **Support and sharing** – Despite significant potential for competition, technical professionals actually value the support of colleagues, interactivity with others, knowledge-sharing and collaborative approach. They favour collegial relationships with their managers.

4.2 Culture

Creating the right conditions for knowledge workers to make a positive contribution to the organisation and to use their knowl–edge to benefit the organisation, requires a knowledge-supporting culture. Harman and Brelade (2000) say the organisational culture in which knowledge workers thrive encourages and values:

- networking and broad contacts externally and internally
- respect for individuals
- creativity and innovation
- trust
- sharing ideas and information
- sound underlying systems and procedures
- continuous learning and development.

And that the organisational culture that does so is characterised by:

- high levels of autonomy for individuals
- respect for skills, knowledge and talents
- low-level office politics and avoidance of 'hidden agendas'
- encouraging a shared stake in the outcomes/ownership
- an emphasis on the sharing of ideas
- giving recognition and making employees feel valued
- offering high levels of involvement in decisions
- building variety into jobs
- efforts to make work stimulating and meaningful
- minimal but effective bureaucracy
- cooperation rather than competition.

Research by the Roffey Park Institute (2000) found the following six 'underpinning values' or cultural prerequisites in successful knowledge-creating organisations:

- openness – ie to information sharing and to challenging the status-quo
- trust and integrity
- tolerance of failure

- respect and acknowledgement of individual contributions

- generosity and reciprocity

- fairness and equity.

Creating a culture in which knowledge workers can thrive at BT Global entailed altering long-held beliefs. For example, from:

- 'Knowledge is power' to 'knowledge sharing is power'

- 'Building empires' to 'building relationships'

- 'Individual work bias' to 'collaborative work bias'

- 'Not paid to share' to 'incentivise sharing'

- 'Penalising mistakes' to 'learning from mistakes'

IRS (2000)

So there are cultures where knowledge workers are more likely to thrive, but equally there are situations that inhibit their perform–ance. Organisations should seek to develop the right climate. For example, is information sharing encouraged in practice or discouraged? Is direct involvement favoured over indirect, representative, involvement? Is risk taking supported, tolerated or frowned upon? Knowledge workers will be sensitive to these organisational signals and will respond accordingly. They will not take risks if they think they will be penalised. They will not share information if it is not reciprocated. They will not participate in decision processes if they think them pointless. Knowledge workers will look after their careers and exhibit behaviours that help them further their ambitions in the context of what the organisation appears to value.

4.2.1 Work organisation

It was acknowledged earlier that knowledge workers are more likely to identify with their profession and peers than their employing organisation. Establishing relatively autonomous units or groups to specifically generate knowledge have long been common for research and development purposes. The basic premise of such working arrangements is to provide researchers with the time and resources to explore new ideas and generate new knowledge largely free from supervision. In the knowledge management literature, networks of knowledge workers, either working directly together or interacting regularly (face-to-face or by email, for example), are often called 'communities of practice'. The American Productivity and Quality Centre (1999) describes such associations and their potential impact in the following way:

> *'Human networks are one of the key vehicles for sharing knowledge. These networks are typically composed of colleagues who share insights on topics they care deeply about. Frequently they lead to the development of close personal relationships through which people feel invited and obliged to contribute to each other's thinking and development.'*

Communities of practice are informal networks and tend to resist supervision and control, and the obligation for people to join — indeed, members should select themselves. Organisations can cultivate such networks by helping to bring the right people together and by establishing a supporting infrastructure, such as space to meet and collaborative technologies.

> BT Global uses communities of practice, which are described as 'people brought together by similar goals'. The company believes communities of practice, which were first established in its global business markets unit, will facilitate the sharing and use of knowledge across the business unit

<div align="right">IRS, 2000</div>

IBM research has used informal networks to develop new ideas, for example, encouraging those with an interest in specific new technologies to gather together like minded individuals for pooling these ideas. This starts as informal networking and only builds into more formal processes once the concepts look like they have potential for real investment.

Other organisations are keen to build external links. Whether this is a recognition of the inevitability of losing staff to clients, as happens with accountancy firms, or an acknowledgement that there are a multiplicity of providers, as seen in the software support world, organisations in these sectors know that there are benefits in keeping in touch with those with similar skills. This might mean networking to keep in touch with the 'home' company (the alumni idea) or with the technology.

4.2.2 Leveraging knowledge

'Knowledge creation depends partly on the effectiveness of knowledge-sharing processes within the organisation.'

<div align="right">CIPD 2004</div>

Organisations tend to be keen to capture the individual know how or tacit knowledge that knowledge workers bring to the workplace. This is because simply possessing knowledge resources, such as knowledge workers, will not in itself create competitive advantage; only managing them so that the organisation can leverage that knowledge (*ie* make it available across the organisation) will provide a strategic advantage. Yet, knowledge is power and individuals are often reluctant to share it. One survey concluded that: 'Special knowledge can be the path to fame and fortune in today's economy' (Bain & Company, 2000).

The de-layering and downsizing firms have resorted to over the past decade or so have also reduced employees' willingness to transfer knowledge. People are unlikely to share something of personal value –- in this case knowledge –- without something in return. The US computer company IBM found that unless staff were given compelling reasons as to why they should share

knowledge, they treated it as a valuable possession and resisted efforts to make it widely available (Conference Board, 1997).

According to the CIPD (2004), knowledge sharing is most likely to be effective when it has the following characteristics:

- It is a continuous process and not just one-off question-answering.

- The sharing of information was combined with practice — showing fellow knowledge workers how to practise a skill –- or intermittent advice given during the application of a skill

- It was grounded upon a shared understanding of the skill developed by working together closely over an extended period of time.

> Oracle Consulting uses its intranet to 'harvest' good practice. Consultants are encouraged to log project plans, results or other good ideas. This means the learning can be shared across work areas and geographies. It helps avoid the constant reinventing of the wheel — something critical to the success of a consulting practice.

Knowledge workers must be allowed to *choose* to share knowledge, and they are more likely to do so if they feel committed to the organisation, believe its leaders are worth supporting, feel encouraged to participate and learn, and if they value their colleagues. The following is a list of factors that will encourage individuals to share knowledge:

- Understanding and valuing the objective or strategy

- Understanding how their work adds value to the common objective

- Feeling respected and trusted

- Knowing and caring about their colleagues

- Valuing and trusting their leaders.

Mentoring, which involves a more experienced employee helping a colleague with less experience, is considered an excellent way of transferring tacit knowledge on a one-to-one basis.

> Mentoring is used extensively by software giant Microsoft, comprising a key feature of its development philosophy. Each employee has access to a mentor. There is an online matching service for mentors and mentees, which provides details of what the mentor can and cannot offer in terms of support and guidance, as well as the kind of mentee he or she is likely to work best with. In addition to creating opportunities for career development and personal growth, mentoring also aims to enhance organisational capability by spreading knowledge, experience throughout the company and creating networks between individuals, functions and business teams.

Suff, 2005

The human networks, such as the communities of practice noted above, also provide opportunities for knowledge transfer. Corporate gatherings are a further opportunity for staff to network with their peers and can be a good way of transferring knowledge. Celemi, the Swedish-owned consultancy, holds regular development days, which are designed to encourage knowledge sharing and involve employees from around the world (IRS, 2000).

Organisations that pay attention to the needs of individual knowledge workers can overcome some of the obstacles to sharing knowledge (Swart and Kinnie, 2002). Meeting knowledge workers' need for development and growth is an example and, in practical terms, may consist of giving such workers challenging tasks that require co-operative behaviour as a way of developing skills and encouraging knowledge transfer.

4.3 Performance management

The CIPD (2004) emphasises the need for a performance management system that knowledge workers feel comfortable with. This study says that such employees are often very sensitive about performance management systems because of the high degree of ownership they have over their skills and knowledge, which means they tend to take great pride in achieving advanced standards of performance. It recommends that knowledge workers be involved in the development of such systems, as knowledge-intensive outcomes tend to be ambiguous and are often difficult to measure. The CIPD concludes that because performance outcomes of knowledge workers can often be vague, they themselves frequently take over the development and implementation of performance managing systems, and this generates a strong sense of ownership over the process.

Edvardsson (2003) describes a performance management system that supports innovation and the development of new capabilities as one that consists of developmental objectives, a balance scorecard, 360-degree review/feedback, group orientation and long-term goals. Desired employee behaviour should encompass risk-taking, exchange of ideas, cooperation and long-term commitment.

Oracle uses 360-degree appraisal from colleagues and customers as inputs into the performance assessment of consultants.

Schuler and Jackson (2002) suggest that a performance manage–ment system that focuses on long-term and group objectives and achievements can support innovation among knowledge workers. Whicker and Andrews (2004) recommend that performance management for knowledge workers should focus on the following:

- Managing outcomes characterised by long feedback cycles (rather than managing inputs and processes)

- Retaining skilled knowledge workers and key knowledge in strategic knowledge domains

- Tapping into knowledge workers' intrinsic motivations

- Enhancing team/business unit performance.

A performance management system can promote knowledge sharing by formalising such behaviour. Regular performance appraisal or review discussions, for example, could cover evidence of knowledge-sharing behaviour. Adding knowledge competencies to the overall competency framework can also support greater knowledge sharing and creation: it makes staff aware of the knowledge behaviours they must demonstrate. It can also act to recognise the specialist knowledge inputs of some staff that may be highly valued by them.

According to Evans (2003), the performance management system covering knowledge workers needs to identify how individuals contribute knowledge, with managers considering the following four areas:

- Knowledge acquisition: what knowledge has the individual brought to the organisation?

- Knowledge sharing: how has the individual applied knowledge to help others develop?

- Knowledge reuse: how frequently has the individual reused existing knowledge and what has been the outcome?

- Knowledge development: has the individual actively developed his or her own knowledge and skills? How well has the individual applied his or her learning?

Cap Gemini revamped its performance review process to support knowledge sharing. All staff have knowledge management goals and this component consists of the following five criteria:

- Knowledge contribution: what knowledge the individual has brought to the company and whether or not they have kept up to date.

- Knowledge reuse: how and how frequently have individuals reused their knowledge? What has been the outcome?

- Knowledge transfer: how frequently has an individual helped a colleague and how has an individual's knowledge be reused?

- Participation in communities of practice: how many communities is the individual a member of? What has been their contribution?

- Publications: what internal or external publications has the individual produced?

Roffey Park (2000)

- A new competency-based performance appraisal system at Enterprise Oil includes a specific competency focusing on knowledge sharing. It is included in every employee's performance appraisal and all staff have at least one objective relating to this area.

- Annual performance reviews at Celemi consist of individuals first assessing their own performance before meeting their manager.

There is a strong argument for a lighter touch to performance appraisal with knowledge workers. As we described earlier, these staff are impatient with bureaucracy and do not want their time diverted away from what they regard as more important tasks. Nevertheless, there is good evidence that employees benefit from being set clear goals (and there may be a need to focus knowledge workers on organisational, not individual, goals) and having feedback on their performance (West, 2002). Knowledge workers are also keen to develop their skills so any appraisal process should offer the chance to discuss career and skill development. The 'light touch' may come from the way this process is enacted — more of a conversation and less of a form-filing exercise; more in the 'coaching' than 'judgmental' style.

Oracle deliberately reduces the frequency of appraisal with the length of service of an employee. In the first year, appraisals occur every three months. The frequency then drops to six monthly and then, after four years' service, it becomes annual. The point of this approach is to recognise that the more experienced the consultant, the more he or she is self reliant. Also there is an acknowledgement that the emphasis shifts from appraising performance to assisting development.

Infineum makes sure in its objective-setting process that staff fully participate. This is achieved by allowing staff to set their own objectives, but within the context of the business direction. The manager in this situation acts as a facilitator rather than in a more traditional, command and control manner.

4.4 Rewards and recognition

4.4.1 Total rewards

Research for the CIPD (2004) found that reward and recognition for knowledge workers has a positive association with employee commitment. The researchers also reported that knowledge workers are not so much concerned with financial reward as with various non-financial rewards. It is both intrinsic and extrinsic motivation that counts. For example, the reward of redundant time or of the opportunity to attend a training course or a conference was often highly valued. This is linked to getting full satisfaction from the job itself.

Organisations also give particular attention to the physical working environment and technology. Many knowledge workers get pleasure from being able to use the latest kit in the right sort of

office space. Conversely, poor working conditions or outmoded technology is a significant switch off. As a result, reward and recognition for such workers tend to combine both financial incentives and non-financial aspects of reward.

> At the Wellcome Trust Sanger Institute, a top-quality research centre, there are generally high levels of satisfaction among employees. Staff say they work for a good employer, are proud to tell people who they work for and feel motivated and secure in their jobs. When asked why this was, staff suggested the single best thing about working at the Sanger is the quality of the science/reputation, the facilities/resources and the people. Many people also referred to the 'atmosphere', 'environment' or 'ethos' of the place.

Other studies have also indicated the need for a total reward package. Newell (2000), for example, recommends other forms of compensation as a well as salaries and bonuses, such as extra holidays and creative benefits. Edvardsson (2003) also believes that knowledge workers will be motivated by the mixture of rewards, including:

- equitable salary structures
- profit-sharing or equity-based rewards
- a variety of benefits
- flexibility over working time and location
- recognition for significant pieces of work.

He also notes that non-financial rewards are important to such workers, suggesting that the freedom and time to work on knowledge-building projects, going to conferences and spending time on interesting projects will motivate them.

Horwitz *et al* (2003) claim that the presence of non-financial rewards for knowledge workers – such as fulfilling work and participation in decision-making – can significantly lower staff turnover. Zárraga and Bonache (2003) argue that group incentives, promotion systems that encourage collaborative activity and 360-degree appraisal systems will all help to establish the necessary conditions for knowledge sharing and creation.

Financial rewards for knowledge workers should be a mix of short- and long-term incentives. Bonuses for achieving a specific goal, for example, will give immediate impact and deliver immediate satisfaction, whereas share options or pensions will deliver their long-term commitment to the organisation.

There is some debate as to whether or not specific knowledge-creating behaviour, such as knowledge sharing should be supported by financial incentives. A survey of companies with knowledge management systems found that 'compensation for knowledge sharing' was the least effective HR tool (from a list of

22) for knowledge transfer (Hackett, 2000). Nonetheless, more than half (55 per cent) or the firms participating in the study used financial incentives to reward knowledge transfer.

4.4.2 Recognition

'Using recognition as a reward is often viewed by knowledge workers as one of the most powerful motivators, especially if their first loyalty is to their professional area of expertise rather than the organisation.'

Harman and Brelade 2000

Recognition of their achievements, within the organisation and externally by their peers, is very important to knowledge workers. This is highlighted by Harman and Brelade (2000) in their list of common management mistakes when rewarding knowledge workers. These include:

- failing to understand rewards

- always qualifying praise with a 'but' (focusing on problems not achievements)

- giving financial reward for work done but not giving the recognition

- failing to recognise an important achievement but giving recognition for a less important achievement

- failing to demonstrate any interest or understanding of the work being done.

Intrinsic rewards, such as peer recognition, are widely used to 'reward' knowledge workers. IRS (2000) provides several examples of organisations, including PricewaterhouseCoopers, DERA, the Ministry of Defence's technical support agency, and Xerox that think highly of peer recognition for knowledge workers. At DERA, for example, peer recognition was described as a 'key enabler' among its mainly scientific community, while Xerox allowed engineers to attach their names to knowledge 'tips' posted on its 'Eureka' knowledge database so they can receive peer recognition for their ideas.

Oracle has a system called 'Ovation'. Small sums of money are available for 'bronze' awards, with more substantial financial recognition for 'gold' awards. Infineum has 'thank you' awards for going above and beyond the call of duty or role requirements, or demonstrating flexibility in performing the job. The sum given is nominal unless the action merits a 'special recognition' award. Up to 15 per cent of salary may be given in these circumstances. Scientists in addition may receive 'inventor' awards.

At Infineum the names of award winners are published on the corporate intranet, there is not other publicity. By contrast, at Oracle, there may be more publicity, especially for gold awards. These may be presented at nomination ceremonies attended by senior executives. In both companies, colleagues can nominate individuals, not just managers.

To ensure workers receive proper recognition for their achieve–ments, Harman and Brelade (2000) recommend that organisations:

● ensure internal reports acknowledge all contributors

● involve as many staff as possible in project presentations

● encourage staff to write for professional journals or speak at professional meetings

● allow direct communication between different levels

● identify and publish the names of 'lead officers' in different areas of work.

Harman and Brelade (2000) have suggested the following 10-step check list to ensure knowledge workers are effectively rewarded:

1. Does your pay system encourage the acquisition, use and sharing of information?

2. Does your reward system recognise the time element in rewards?

3. Do you regularly consult with those that you are rewarding?

4. Do you build 'recognition' into organisational processes?

5. Does your pay system reward rather than compensate?

6. Does your reward system include the assessment of achievements, such as acquiring new skills and knowledge, contributing to teamworking, the development of others?

7. Have you a flexible reward system?

8. Have you ensured that differentials between staff are justifiable on the basis of contribution?

9. Do you recognise the acquisition, use and sharing of information through non-pay methods?

10. Can knowledge workers progress in your pay structure without having to enter management?

4.5 Learning and development

Knowledge may depreciate over time, so an important element of the psychological contract for knowledge workers is employer support to keep their skills up-to-date so they are able to remain at the forefront of their professional fields. Providing knowledge workers with ample opportunity for continued learning and to participate in continuous professional development activities is therefore a key motivator. Tapping into these intrinsic motivations, such as knowledge workers' passion for learning and exposure to new ideas and perspectives, can help to build commitment and loyalty. Continuous learning coupled with challenging work will help prevent the 'career plateau' identified by Sveiby (2002) and to which professionals and creative workers are thought to be particularly vulnerable. According to Whicker and Andrews (2004), 'learning and professional development are relevant to knowledge workers to the extent that it is intimately connected with the

context of their ongoing work'. They also suggest that because knowledge workers tend to be highly motivated to learn, they should exercise control over their own development activities.

This last point is reinforced by Kelley and Caplan (1993) in their study of knowledge workers at the US firm Bell Labs: 'Not surprisingly, knowledge workers don't like off-the-shelf produc–tivity training programmes. Our discussions with engineers at Bell Labs and elsewhere show that these people like to make their own choices'. The authors also say that knowledge workers prefer training by acknowledged experts rather than trainers who 'breeze in, teach a day-long workshop and then breeze out'.

The training and development focus for knowledge workers should be on developing individual and organisational capability rather than on developing individual skills and competencies. This kind of strategy should:

- recognise the nexus between learning, knowing and doing

- focus on personalised capability development embedded in work

- build 'time-to-capability', by accelerating learning

- identify and share excellent practices

- facilitate organisational capability

- build organisational capability by facilitating knowledge transfer.

As well as offering conventional learning opportunities, providing knowledge workers with complex, unique tasks will give them the opportunity to apply and, crucially, develop their knowledge. HR can help build a culture in which learning is valued, encouraged and supported by providing time, public and private spaces and resources (such as information centres, special learning laboratories and a virtual university) for learning. An organisation needs to be innovative in the ways it supports the development of knowledge workers. Examples include setting up professional development clubs, providing opportunities to join national bodies and inviting other technical experts to speak.

Individuals take responsibility for their own development at design and innovation consultancy IDEO, deciding how they want to extend their skills and knowledge. The company will pay for appropriate external courses and all IDEO staff are encouraged to participate in internal teaching sessions as both 'students' and 'teachers'. Each week, outsiders are invited to share their experiences with staff in 'beer and nuts' sessions.

Work Foundation (2004)

It should be recognised too that the organisation's support for learning and development might make the difference between one employer and another when it comes to recruits choosing their

place of work. Newell (2000) says there are three things that will influence whether or not knowledge workers are attracted to an organisation.

1. Are there opportunities for personal and career development, growth and achievement?

2. Is the work challenging? Can they earn respect, contribute to the organisation and work in an innovative way, and have their contribution recognised?

3. Is there leading-edge technology? Does the organisation possess the latest equipment and tools? Is it attracting the best people and setting the standards?

For its part the potential employer may distinguish between candidates in exactly the same way: how much time and energy does the candidate devote to learning and development. Evans (2003) says that to discover whether individuals possess such behaviour, possible interview questions to ask include:

● How well networked are they?

● What roles do they play in the networks they belong to?

● What types of communities of practice do they belong to?

● How have they helped develop their colleagues?

● How do they keep their own knowledge up-to-date?

4.6 Careers and reward

Career progression is vital to knowledge workers, but many do not want to move into managerial roles, so organisations should develop career systems for high-level technical professionals that do not require such as shift. Oracle, for example, allows a choice between sticking to a *doer* role or moving to a more mentoring and managing role. Providing knowledge workers with individual career planning, so they know exactly where they can go and what they need to do to get there, will assist their career progression. They will also want the organisation to provide the tools to enable a meaningful career, rather than dictate how they progress.

Of course offering 'dual ladder' career progression also raises the question of reward. Does the organisation value technical inputs as much as managerial, or more so? This relates partly to the underlying job evaluation system — what factors are considered and how are they weighted? For example, is job knowledge given more weight than financial accountability? Some research laboratories, especially in the USA, have allowed their top scientists to be paid more than those that nominally manage them. This is logical if the company depends more on the innovation of the researchers than the quality of resource management. In standalone institutions, getting this balance right may be relatively easy, but it is harder where the research arm is part of a bigger organisation.

In the 1980s Shell Research modified its job evaluation process for scientists in response to concerns that the Hay system did not adequately acknowledge the intellectual contribution. In recognition of the fact that the individual could shape the job, more than vice versa, the job evaluation process allowed for the submission of CVs alongside the conventional job description. A normal evaluation score was then be produced for the standard job, but this could be then increased in the light of additional skills offered by the job holder. The advantage of this approach was that when the incumbent moved on the grade reverted to the default position.

Another way of using career paths is to describe the sort of progress individuals can make as their career progresses. In broad banded systems, progression can be described in relation to performance zones: moving from trainee to competent to master. Alternatively, boundaries within the band can be crossed on the successful acquisition of skills, competencies or qualifications.

Figure 1 illustrates how Infineum uses a broad banded pay structure to manage skill development. The allocation of jobs is to bands, but the allocation of people within those jobs is determined by profiles. These describe the skills and behaviours expected at each band. There are four profiles at each band, representing growing expertise and contribution. Thus, profile 0 is for trainees or those developing in the post, moving through to profile 3 where deep knowledge is expected. The overlap between profile 3 of one band and profile 1 of the next band up illustrates that there is an intention to recognise experts and to signal to them that they do not necessarily have to push into higher banded jobs, with perhaps managerial responsibility required. As the market pricing is based at the interface between profiles 1 and 2, this means that those in profile 3 are being paid above the market rate precisely because of their expertise. It should also be noted that movement

Figure 1: Broad banded pay structure at Infineum
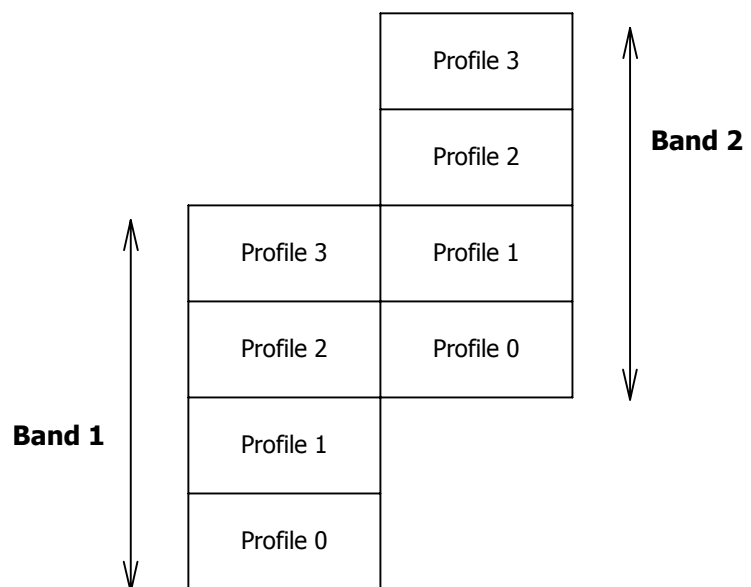
Source: IES, 2005

between profiles is a matter of performance as well as skill inputs. Sustained contribution over a couple of years is necessary before re-profiling could be considered.

Narrow banded pay systems can operate in the same way. Progress across the grades can not only be related to increasing the weight of the job, as would be the case in conventional job evaluation schemes, but also in the knowledge/expertise deployed (as in the Shell example above) or qualifications gained (as in the HMCE example below).

> HM Customs and Excise decided to use career paths as a means of developing a more 'highly skilled workforce, trained to professional standards'. This could be achieved by describing the competencies, training and qualifications necessary for each of the key posts within a job family. By so doing, the career pathway could be indicated, showing how staff could progress by gaining qualifications and training. Tax Professionalism was the first family so to be described.

5. Potential issues and problems

5.1 Introduction

The lack of a universal definition of a knowledge worker has led some commentators to argue that such workers, even if they do exist in any great number, are no different from other groups of workers and so do not require any different management treatment (Collins 1998). The CIPD (2002) partially supports this view, believing that the management of knowledge workers may not require entirely new approaches to HR issues.

However, there are several reasons to dispute this view. In particular, performance management and reward may need adjustment.

5.2 Performance management

One of the biggest challenges in successfully managing knowledge workers is in devising systems for providing evaluation and feedback. Some of the problems are common to performance management in general. In global companies, managers may be managing very dispersed staff, or in delayered companies, the number of reports to each manager may be very high. For example, the ratio of consultants to managers in Oracle consulting is 40 to one. Particular issues with knowledge work concern the fact that it is difficult to measure objectively and, because it tends to be part of a long process, it is hard to gauge its effectiveness until the project is completed. Also, because knowledge, at least the most important knowledge, resides in people's heads or intellectual domains, it is difficult to either observe or measure it.

As Austin (2002) points out: 'Not only can't the supervisor observe effort directly in knowledge work, sometimes the supervisor can't understand what the worker is doing and may not be qualified to judge the results'. As an Infineum manager put it: the activity may be 'outside the scanning area' of the manager. Managing knowl–edge workers poses major challenges for both HR professionals and managers, because building value from knowledge and assessing knowledge risk are often new departures for them.

A related issue is that of objective setting. General objectives might be set, eg 'find a cure for the common cold', but specific and more detailed targets are much harder. For example, you cannot say 'find a cure for the common cold within the next six months' or 'establish a timetable for inventing a cure for the common cold by August 2005'. The manager has to trust much more the integrity of their employee.

Nonetheless, performance management of knowledge workers is essential to deal with some of their particular traits. One may be the tendency among knowledge workers to always find a new solution to a problem even if a good solution that is already available or their idea would be too expensive. Knowledge workers do not always consider organisational efficiency as being as important as professional standards or values. They may not accept the 80 per cent option or the second-hand solution. Such decisions offend their professional sensibilities. Take IT staff, they always want the latest version of any software to be implemented. They ignore the cost of roll out and fail to quantify the benefits.

Moreover, the needs and resources that knowledge workers demand to function effectively, such as time to reflect, to think and to interact and build relationships, tend to conflict with organi–sational demands to meet deadlines and achieve specific goals.

In addition, as the CIPD (2004) has suggested, the management of knowledge workers creates dilemmas between the individual and the employer. The latter wishes the knowledge workers to develop organisationally specific knowledge that will be retained and will deliver value to the employer. By contrast, the employee wants to keep their knowledge safe so that they can use it to increase their employability or transfer it to others as they see fit. Knowledge transfer may be an issue either because the individual aims to increase his/her market value or because of their professional commitment to sharing. Think of the argument over the human genome project – should that data be available to all or only to the companies that made the discoveries. The argument about knowledge ownership is at the heart of the debate.

5.3 Rewards

The frequently heard maxim amongst remuneration specialists is: reward outputs, not inputs. Outputs deliver value. Inputs only promise value. The trouble is that knowledge workers may only be in a position to promise results. Incentive schemes that are output based, therefore, may fail to engage the knowledge worker. For example, in team-based pay trials in the NHS, medical staff found it difficult to think of work targets in terms of outputs, let alone outcomes. They could suggest ways of improving their skills, but found it much less easy to describe the end results for patients.

Knowledge work is often more about *how* smart workers work and less about how *hard* they work. As a result, where incentives are designed to make employees work harder, they may fail.

Either form of incentive may distort the effort of knowledge workers, if they respond or engage at all. For example, they might encourage knowledge workers to horde knowledge, rather than cooperate with colleagues. This may produce their bonus, but not improve organisational performance.

As with all staff, but particularly knowledge workers, attention has to be paid to developing good decision processes. Procedural justice (how decisions are made) is likely to be more important than distributive (how rewards are allocated). Financial rewards may be important in terms of how they convey status, but may not be sufficient to motivate or indeed retain.

As various organisations have reported, it is not always pay that drives staff away. It may be work/life balance or lack of career opportunities. The Public Services Productivity Review Panel (2002) reported that staff in the public sector rarely mentioned pay as motivator. Indeed, they more often stressed that they were not 'in it for the money'. Instead, staff emphasised quality relationships, delegation of responsibilities, recognition of effort/attainment, being able to make a difference, good communication, clear direction, and participation in work decisions.

Recent work by the Audit Commission (2002) showed that staff joined the public service 'to make a positive difference' and to do interesting and rewarding work. With respect to pay, staff wanted it 'to reflect their responsibilities and demonstrate that society attaches value to their work'. In the Mori Teacher Survey job satisfaction/personal achievement was at 32 per cent the second most commonly reported motivation factor, after working with children. Whether the role is creative, mentally stimulating or challenging was the third was common factor, at 25 per cent

The psychological contract for knowledge workers may be relat–ively fragile, and therefore it needs careful nurturing, and not just with cash.

5.4 Work organisation

Traditional organisational structures often do not meet the needs of knowledge workers. Swart and Kinnie (2002) found examples of traditional hierarchical structures in which teams operated in functional silos that inhibited effective explicit knowledge transfer let alone the sharing of tacit knowledge. Hoarding knowledge is a common problem, exacerbated by disengagement from their employer. If workers tend to regard knowledge as power, they will keep it for their own purposes, eg future employability, rather than use it for the benefit of what they may see as temporary employer.

5.5 Summary

Fahey and Prusak (1998) have analysed knowledge management in a number of large US organisations and have produced a list of common problems. Although several relate to technological failures in ICT knowledge management systems, the list also includes the following potential people-based pitfalls:

- Believing knowledge exists outside individuals
- Not emphasising tacit knowledge
- Separating knowledge from its uses
- Downplaying thinking and reasoning
- Not focusing on the future
- Failing to experiment
- Substituting technology for human contact
- Seeking to measure knowledge.

6. Conclusions

Whatever definition one ascribes to, there is no doubt that the proportion of the workforce that can be described as knowledge workers has increased significantly over the past decade or so and continues to rise, and that the importance of such workers to the economy and success of businesses is accelerating. Whether or not organisations need to develop an entirely new way of managing such workers, however, is more debatable. In general, the nature of knowledge work differs in so far as it is more difficult to monitor and objectively measure than traditional output-based employment. Knowledge workers themselves have characteristics, such as a greater affinity for their professions than their employer, a preference for greater autonomy and less control, and a proclivity for professional recognition, that differentiate them from other groups. Nonetheless, those working in research and development units and professionals, such as lawyers, have had the same aspirations and worked in a similar way for years. What is different is that there is now far more workers with such characteristics and job satisfaction needs, and in some organisations they now constitute the majority of the workforce.

As a result, traditional organisational cultures, management structures and established policies and procedures are no longer appropriate. Developing an organisational culture that values cooperation and collaboration over command and control, open management over hierarchy and status, cross-functional activities over rigid departmental boundaries, and innovation and creativity over bureaucracy is one in which knowledge activities and knowledge workers are most likely to thrive. Underpinning the successful management of knowledge workers is trust; such workers need to have control over their knowledge and how they apply it, and management must be tolerant of risk-taking. Creating the space and providing the resources for knowledge workers to excel is also important.

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