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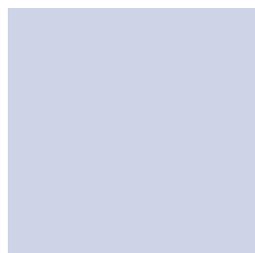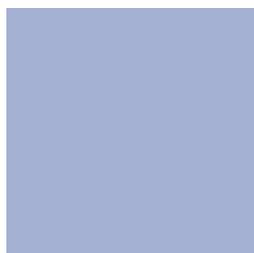**KNOWLEDGE WORKS**

Knowledge How To

Coding and Classification: Maximising Returns from Purchasing Data

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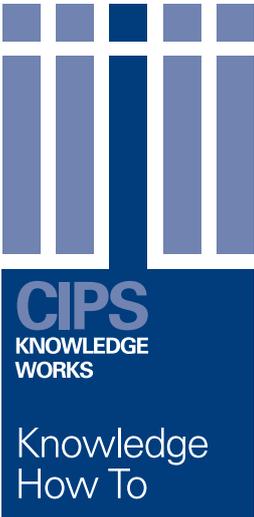## Coding and Classification: Maximising Returns from Purchasing Data

Foreword

Intelligence is at the heart of every successful business and organisation. Intelligence today means the ability to make the right decisions in the context of a competitive environment. Technology and the Internet are being used in new ways to streamline processes and automate routine, low value tasks, within organisations and with customers and suppliers. How organisations actually make the most of their purchasing data and information which is being collected through the use of technology, is often the last issue to be considered in a broad improvement strategy. One of the last considerations, data, has the greatest potential for success or failure. Purchasing data has a wide variety of uses, varying from operational management of suppliers and identification of rationalisation opportunities to supporting the commercial negotiation process and management of multi-million pound contracts. It is needed to support both private and public sector organisations where best value for money and quality are prime business drivers. While it is easy to view IT systems as a barrier to getting at the right data, often the main problem is that insufficient thought is given to the organisation's need for information and decision-making. Success relies on understanding what the organisation wants to achieve. Reaching that goal can depend on how information is classified and stored. The issues are quite logical, but are management rather than technical considerations. This guide has proved very popular since it was first produced in 2002 as it provided an introduction to purchasing coding and classification for the first time. It has been updated to reflect new developments, but has stood the test of time well. It provides:

- Good practice guidance in helping organisations wishing to adopt or review their purchasing coding and classification structures.

- Non sector specific advice to any organisation that finds the quality of its purchasing data a barrier to making further progress in achieving goals and targets.
- Clear evidence that purchasing coding and classification is a strategic issue for business management, even if implementation falls to others in operational areas.
- Useful lists of contacts which can be used to gather the latest information as new developments are made

I have pleasure, therefore, in commending this guide to you. It addresses an important issue that is a key contributor to the drive for best value for money and service excellence.

Roy Ayliffe FCIPS
Director of Professional Practice, CIPS

Roy can be contacted at roy.ayliffe@cips.org

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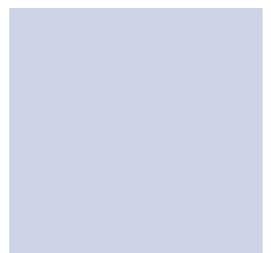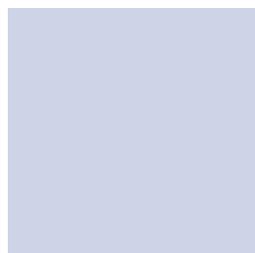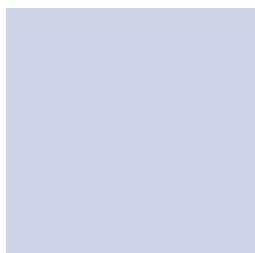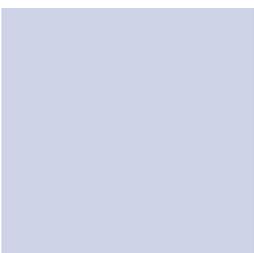
Maximising Returns from Purchasing Data
Coding and Classification

The importance of purchasing coding and classification to business

Marketing, selling, sourcing, and purchasing rely increasingly on automated or Internet based business models and systems to meet the goal of maximum operational effectiveness and efficiency. This goal is common to both public and private sector organisations although the business drivers may be different.

Organisations are working together more frequently to integrate their business processes, or are working within buying or selling groups on the Internet to increase their market penetration. They are adopting new processes and practices to collaborate in these ways or to introduce new trading systems. Trading partner relationships involve numerous management issues including:

- Matching stakeholder needs to ensure wins all round
- Assessing different technologies
- Managing different cultures and approaches to organisational change projects
- Considering issues around data alignment and management across organisational boundaries
- Coordinating suppliers and large buying groups in standardisation initiatives

One of the early requirements that invariably arises in these situations is the need for coding and classifying business information.

Improving performance, control and the bottom line

The implementation of coding and classification standards may well be a technical issue, but the decision on what standards to adopt is ultimately a business one requiring input from a variety of disciplines, including purchasing, audit, finance, sales and corporate managers.

The purpose of this guide is to highlight the role of coding and classification to support:

- Strategic purchasing activity
- The deployment of e-business systems
- Business managers in making informed and timely decisions, particularly for sourcing options and contract alignment
- The analysis of third party expenditure for collaborative purposes

The authors have concentrated on highlighting where management decisions need to be taken on the use of coding and classification hierarchies and setting out good practices for their selection and adoption.
The decisions an organisation makes about coding or classifying the products and services it buys and sells, its suppliers, and customers, will impact on the:

- Capability of business systems to support business-as-usual activities
- Usefulness and accuracy of management information generated by business systems, and therefore its capability to make the most of business intelligence tools and knowledge management techniques
- Ability to add new, particularly e-business related, systems and solutions to the current back-office systems
- Scaleability and future proofing of business systems to work with new product/service lines across group structures or within collaborative trading groups
- Ability to exchange information between organisations and work on collaborative purchasing activities (e.g. in the Public Sector)

Building in flexibility

Many organisations have direct experience of coding and classification already. For example, bar codes are widely used for identification and distribution purposes, and accounting systems have account codes to support the financial management of the organisation. However, most of the existing structures were used to serve one

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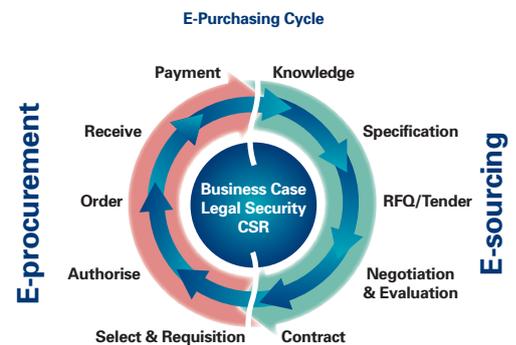# Coding and Classification

or several aspects of business. Bringing them together to generate information in support of corporate requirements, such as business-wide Key Performance Indicators (KPIs), has already presented innumerable problems for most private and public sector bodies. The emergence of e-business as a medium of trade has introduced a further requirement for purchasing coding and classification to support automated trading between buyers and sellers or across supply chains. Adopting the right codes and classifications is a critical success factor in achieving the benefits and savings promised by e-business. Other benefits that can accrue include:

- Supporting the automation of business transactions, particularly low value high volume ones
- Providing accurate and meaningful information to support informed and timely management decisions
- Allowing managers to seek opportunities for cost reduction, supplier rationalisation and streamlined contractual arrangements
- Facilitating closer co-operation with trading partners and critical suppliers
- Identifying areas where scarce corporate purchasing and commercial resources should be used
- Generating the building blocks to support a new generation of measures and indicators required in the adoption and achievement of strategic procurement
- Providing the opportunity to identify where collaborative working or shared service arrangements would be beneficial, particularly in the UK public sector

The baseline is that decisions made on coding and classification will directly affect the quality, accuracy and relevance of the information that can be extracted to support both operational and strategic business decision-making and performance measurement.

Why use coding and classification?
E-business is made up of a series of transactions that flow around the main activities in the purchasing cycle (Table 1 refers).

E-Purchasing Cycle

E-procurement: Payment, Receive, Order, Authorise, Select & Requisition

E-sourcing: Knowledge, Specification, RFQ/Tender, Negotiation & Evaluation, Contract

Business Case Legal Security CSR

The data content of these transactions (product description, size, colour, quantity, value, currency) is made up of descriptions, identification or instructions. People who handle paperwork may be able to make judgements about what these things mean in the context of a transaction, but computers cannot. They need complete, unambiguous, accurate and up-to-date information to process transactions within fixed business rules.

By giving code or number values to descriptions or instructions, complex business processes and transactions are more easily automated. Through automation, costs are reduced, trading speeds up and greater customer choice and product flexibility is offered. Automated transactions also produce clear, accurate records and audit trails. Clear, accurate records enable flexible and meaningful analysis, which in turn leads to informed and improved decisions. The goal of e-business is good business – and seamless, automated trade between buyers and sellers.

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Coding and Classification

Although usually hidden in systems, coding and classification gives meaning to trading information passing through an organisation's IT systems. For example, analysis can be made of spend levels and profiles of individual or groups of products and services. These can then be matched against things, such as suppliers in that market, distribution of current business, off-contract spend and market trends. At this point information becomes meaningful and better decisions should be forthcoming.

What is coding and classification?
Broadly speaking, coding and classification is about using a number or set of alphanumeric characters to:
*   Identify a specific thing; or
*   Group similar things together.

For example, a bar code number on a can of fizzy drink identifies what the drink is, who manufactures the drink and the unit and pack size of the fizzy drink. This particular code is known as an identification code as it has no relation to other codes and wouldn't be used to group products together for analysis. It is important to distinguish between coding and classification as they support totally different business roles. Adopting the wrong approach can present significant challenges by distorting the information available to the point that it cannot support the business requirement for which it was intended.

Coding for identification
Identification codes are used for recording and tracking items and are used for inventory management, point of sale transactions or historical record keeping. An identification code can also identify other information such as:
*   Address/Location identifiers
*   Language identifiers
*   Unit of measures or issue
*   Currency identifiers
*   Country identifiers
*   Price/cost identifiers

Classification for analysis
A classification structure logically groups similar things together into classes or families for the purpose of analysis. Hierarchical classifications allow analysis to be done at macro or micro levels, depending on business need. The need may be overall financial reporting, budgetary control, project reporting, product costing or purchasing performance review. For example, the purchase of a computer mouse may need to be analysed at macro level under "IT spend" or micro level under "computer peripherals spend".

Classifications are used for analysing, searching and decision-making. Classifications can be used for expenditure analysis, contracts registers and product searches in electronic catalogues (See later section - Where to code and classify).

For the purposes of this paper, the term "coding" means a value that unambiguously identifies a specific thing. "Classification" means a value that groups related things together for analysis.

Coding and classification for services
The purchase of business services such as the use of contractors, consultants and temporary staff can represent around 75% of the total purchasing spend in many organisations and are often high in value with significant numbers of transactions associated. Yet their purchase is not always handled, let alone managed, through the purchasing function. Some argue that buying services needs a different process to a commodity purchase, which suggests that services are considered a "black box" where control, transparency and analysis cannot apply.

Arguably there are variations in the complexity of the acquisition process, but that process still follows the same steps as any other in the purchasing cycle. They can, therefore, be purchased, controlled, managed and analysed in the same way. Services should be coded and classified in the same way as products, particularly
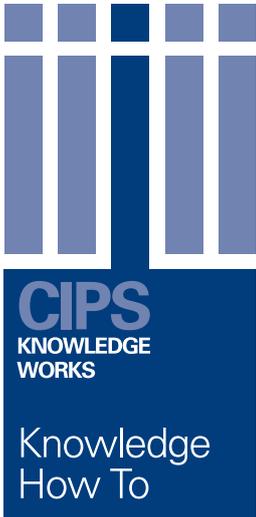
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where they account for a significant part of the purchasing spend. Units of service supply (e.g. days, projects, outcomes) can be quantified and therefore, measured. They also represent a strong opportunity for potential rationalisation and the introduction of streamlined contractual arrangements, which will be very difficult to do without a hierarchical classification in place.

Until recently, services have been under-represented in the commonly available coding and classification structures, but that situation has now changed. The shortage of available classification structures in the past is no reason to exclude services purchasing or analysis from your business plan.

Where to code and classify

Some businesses have used coding and classification for many years. It is well used in the manufacturing and retail sectors for example. The need to stock parts, support assembly production and measure demand for, and movement of, lines has given rise to well documented identification codes. Bar codes are now used across the world and meet all the main business requirements for which they were designed.

The use of classifications to manage groups or hierarchies of products and services is a more recent development. Many organisations struggle to provide strategic and operational purchasing analysis by using codes derived from the chart of accounts or trying to use the identification codes provided by their suppliers. In almost all cases, this approach is flawed. The codes used in the chart of accounts are finance facing and rarely give the in-depth analysis required to support corporate purchasing activity. Similarly, using supplier identification codes is fine, but if similar products are purchased from other suppliers they will be coded differently.

The truth is that corporate and strategic purchasing operations will struggle to gain accurate and meaningful information to manage and support

collaborative and improved contractual arrangements without a purchasing facing classification being in place. This message was underlined in the ***Efficiency in Civil Government Procurement*** (1998) Report (ISBN 0947819592) that said, **"to be effective, collaboration and joint procurement needs full and reliable information about who is buying what, from whom, and through what means. This will entail using a common classification system"**.

No blank sheet of paper

The first message is, do not start designing new codes and classifications from a blank sheet of paper and without examining the suitability of an existing structure. Many have done the work already, so don't try to reinvent the wheel! The second message is do not start to replace existing coding and classification structures. They may have been designed to meet a specific business need other than for purchasing.

Coding and classification structures have been around for a long time. Many businesses and government organisations have worked together to develop means of identifying, describing and classifying every aspect of business transactions. Think of any part of your organisation, any product, any process, in any country for any reason and someone will have developed a code or classification to handle it.

Coding and classification is most commonly used to support activities such as the **automation of business transactions, supplier rationalisation** and the collation of **accurate and meaningful spend data**. The most common types in use are:

- **Product/service classification** – used to group similar products/services into logical, searchable categories. Hierarchical categories enable "drill down" during product searches or sourcing and "roll-up" of purchases for supply analysis and rationalisation
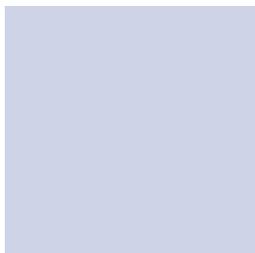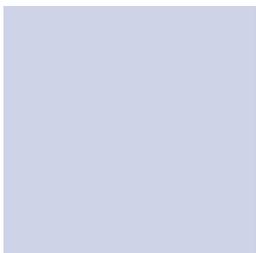
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- Product description and attributes – used to comprehensively describe every facet of a product or service, including units of measure, packing quantities, fabrication, and colour. This kind of information is needed for inventory management, or product searches in electronic catalogues
- Business/Supplier Identifier – used to identify unique business entities and to resolve issues of supplier family hierarchies. A unique identifier simplifies supplier/customer management by avoiding common errors, abbreviations or inconsistency in name and address records (e.g. British Telecom, BT, B.Telecom, B.T.) It can support corresponding address/location management and enables supply base analysis prior to a rationalisation review
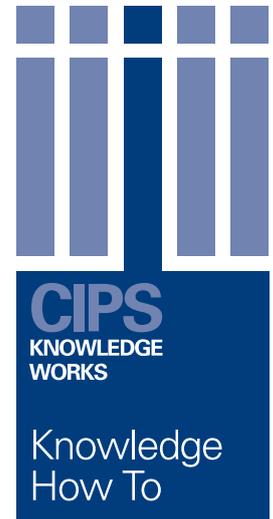
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Maximise the returns from business systems

Many business systems have been acquired on the back of business cases that set out benefits and savings that will be accrued once they are implemented and used. In many instances, research shows that the savings and benefits have failed to materialise and automation capability has not been used to its full potential. Automation is there to:

- Increase the speed of business
- Reduce cost and overheads
- Increase control/visibility
- Increase accuracy
- Enable people to spend time on strategic rather than administrative tasks

The use of a good purchasing coding and classification hierarchy should underpin all of these. It is fundamental to providing the data needed for management reporting at a tactical level, and the development of a business intelligence strategy at a strategic level.

To illustrate the point, consider the workings of financial analysis and reporting.

Year-end accounts are produced from ledgers that break down into nominal code groupings and individual ledger accounts. Management accounts deliver financial information from many different perspectives by drawing on underlying account structures, account codes and the financial data itself.

Now apply the analogy to automated trading systems. The data, the codes and the structures deliver the same capability to track, report, analyse, search and so on. Decisions on financial management and reporting are not taken lightly. Neither should equivalent decisions on purchasing and business trading systems.

Doing better business

Well coded and classified information enables an organisation to:

- Look at trading information at any level of the business, from any perspective
- Aggregate information or identify gaps in capability
- Examine trends, causes, relationships and opportunities
- Target resources in the most effective way
- Integrate systems and processes across the business or into other businesses
- Deploy business intelligence tools with greater ease, so that the data is already arranged into a logical format

The Supply Positioning model (see Table 2) illustrates the ways in which classifications and codes can be deployed across an organisation's purchasing portfolio. Broadly speaking, automation and on-line ordering are critical to tactical purchases (bottom quadrants). The collection and deployment of information to support the management and negotiation process is key to strategic purchases (top quadrants). In order to manage purchasing for organisational advantage, you have to understand your position and relationship with your suppliers. For most tactical purchases with relative low value, high level classification is acceptable as buyer involvement should be minimal and detailed analysis is rarely cost effective. However, there will be a need for coding at this level as this supports identification of lines for trading purposes.

The strategic purchases (particularly for services) should be classified and broken down in more detail. This is to support issues such as detailed analysis of market trends, contract performance, benchmarking supplier activity and the exchange of information with like-minded organisations. Table 2 shows where in each of the four quadrants product/service coding and classification can be used to support the strategy for purchasing products and services.

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Quadrant model

Vertical axis: **Complexity / Risk** — top: *high risk/less suppliers high complexity*; bottom: *low risk/many suppliers low complexity*

Horizontal axis: **Spend / Value** — left: *low risk/many suppliers low complexity*; right: *high value less transactions*

Top-left quadrant:
- Collaborative contractual arrangements
- Sharing of like information, which needs to be consistent to be of value
- Cross referencing groups of products / services with suitable suppliers

Top-right quadrant:
- Measurement against KPIs
- Managing the corporate function
- Contract management & review
- Supplier Relationship Management

Bottom-left quadrant:
- Aggregation and line rationalisation opportunities
- Trend analysis and audit
- Automated trading programmes (e.g. P-Card spend, catalogue ordering)
- Operational management (e.g. use of framework and corporate contracts)

Bottom-right quadrant:
- Sector benchmarking
- Accelerating the competitive process
- Aggregation of spend

A corporate purchasing strategy should include objectives that seek to minimise business risk and maximise cost savings/service improvements in all four areas of the model. The decisions made in developing a strategy must be supported by a clear understanding of what the organisation is buying and spending now, and then what gaps and opportunities exist to improve the position.

Using a recognised purchasing classification gives meaning to operational and contract information. It helps make the realisation of those objectives a reality.

Work with your trading partners
It is important to stress that the use of a purchasing classification is not there to replace existing coding structures used by suppliers or trading groups. A supplier for widgets will rightly expect to see its part or catalogue number on an order and will not want the overhead of holding details of your selected classification hierarchy.

In planning purchasing activity or introducing an electronic trading arrangement, the way you describe products and services traded, shipped or designed must be able to flow right through the systems and processes of other organisations (your trading partners or purchasing agent). If every organisation adopts its own style of description and identification, that easy flow of information becomes more difficult. The time to implement will increase and the cost benefit will diminish rapidly. Working with your trading partners well in advance to confirm their methods of describing and identifying business information is very important. It must be compatible with your own, and on through the supply chain in manufacturing and retailing. Make sure it is flexible and meets the needs of your business and market (in the treatment of services purchasing for example).

Using coded and classified information
In organisations where automated business systems are well established, coding and classification of information is actively managed and is central to control and reporting processes. Information flows through every trading function:

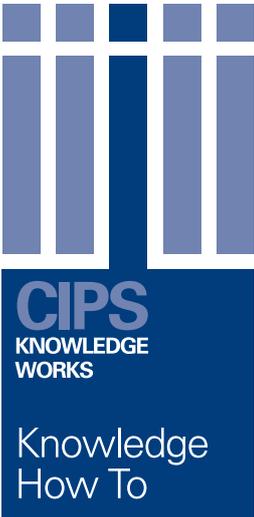| Function	In the form of:
Purchasing	Purchase orders
Design	Specification
Production	Work orders
Delivery	Despatch orders
Sales	Sales order processing, invoicing, inventory management, credit control
Marketing	Product catalogues, sourcing

Activities that commonly rely on coding and classification of business information as part of the development or restructuring of a business function include spend analysis and purchasing rationalisation. These are common areas of review because they offer very real and immediate opportunities for cost

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reduction through improved management. Coded and classified product information is also improving the visibility of the supply market for sourcing activities.

Expenditure analysis

The Supply Positioning model demonstrates that the Risk/Value balance governing purchasing management can have a strategic or bottom line impact on any organisation. Corporate purchasing needs accurate, meaningful data as a basis for comparative analysis to reach the right conclusions and make the right decisions.

Coding and classification of information brings uniformity across business divisions, business functions and even across business units within an organisation. It allows purchasing activity to be viewed from macro or micro level. It demonstrates the value of spend with a particular supplier, or at a higher level the value of spend within a corporate structure. This spending power may be greater than you think. Unless an organisation has analysed sources and levels of supply, it is hard to quantify overall spend with a group of related companies. Expenditure analysis gives the purchasing team the tools to prove their real worth to the organisation, as it identifies opportunities for reducing cost. However, it is important to bear in mind that such analysis needs to be done against what was purchased from suppliers rather than what they actually supply. Otherwise the expenditure profiles may be seriously distorted. Such analysis is not a one off exercise and skills need to be developed in-house to ensure that trends and opportunities are identified and acted upon.

Also the ability to know which suppliers can provide a generic product or service is enhanced once a standard classification is posted against the supplier record. Much time is wasted by people trying to find out who can supply what, as their current systems have no meaningful way of making this link.

Purchasing rationalisation

Once an organisation knows what it is spending and with whom, there is opportunity for savings. Information is crucial when contracts are to be renegotiated. Highlighted opportunities to rationalise the supplier base can achieve improved terms and efficiency savings. At a tactical level, savings of up to 20% can be achieved through volume purchasing agreements, but this category of spend often amounts to only 10 to 15% of the total purchasing exepnditure. Control and management of supply contracts increases by reducing the number of suppliers used. Time can then be spent on developing better relationships, improving quality levels and seeking enhanced trading terms. The use of common coding and classification with your supply base will help provide the information against which these goals can become a reality.

Business and technical implications

Challenges

The first challenges an organisation is likely to face in adopting a coding and/or classification structure are:

- Deciding which is required – remember they are not the same and support totally different business functions
- Ensuring that any decision is not seen as a purely technical issue, particularly if it is a part of an IT system
- Avoiding being driven into a particular structure by suppliers and/or IT providers – it must be to a mutual benefit not just theirs

The purchasing information passing through your business systems can touch almost every part of the organisation, making it essential that decisions on classifications are taken from a business perspective. That means every part of the organisation that produces or uses the information has a stake in the selection and adoption of a coding and/or classification structure.

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Most organisations will already use coding and classification in functional areas (traditionally finance and inventory management), but now they will need to extend the use of these codes out into the rest of the organisation. The key questions on suitability are:

- Is what you've got right for the job?
- Can it meet all your business and process needs?
- Is it transferable and flexible enough to work in all parts of the organisation?
- Can it be used with other trading partners? Do they work with something different?
- Is it proprietary and therefore will extending its use incur an additional cost element?

As with any organisational change, levels of stakeholder interest and involvement depend on the impact the development has on their role or performance. With the introduction of performance indicators into operational management, any facilitator and enabler of increased performance takes on greater significance.

The greatest challenges in adopting and managing common coding and classification are:

- People's perceptions and attitudes, and even getting them interested on lots of occasions
- Effect on controls and processes
- Ability of established business systems to support what's adopted
- Impact of streamlined processes, increased control and informed decisions on business strategy
- Need to cross reference with other coding and classifications in place

Perceptions and attitudes
Perceptions and attitudes come into play at two levels:

- Understanding and ownership of the importance of, and value offered by coding and classification
- Gaining consensus over the way coding and classification is implemented

Building an understanding of the value, given its likely impact on many different business functions, has been explored earlier. Its relevance and significance to stakeholders can be shown as an enabler towards performance targets.

Consensus on implementation is more difficult. We code and classify to build clarity and definition, which is a simple proposition. But clarity and definition can be subjective and emotive, depending on the perception of your relationship to the thing being defined. For example, the way the purchasing team defines a stock item (e.g. a titanium valve casing), may be very different to the definition of the same item by the production team. Each team feels ownership of the valve casing because it is a high value part of their process or performance measures. What it means to each group and how they describe it will differ, and the resulting tensions must be managed.

Clarity and ownership extended across the organisation is a matter of culture, and the adoption of a performance enabler, like coding and classification, may form part of a wider cultural shift involving performance management or business systems roll out.

Controls and processes
Introducing coding and classification for the first time, or extending what you already use into new areas of the organisation places an additional level of decision-making and management into an organisation's business process.

Not only do you need to decide which structure to use, then which parts of it to use, you need also to decide where the classification will be used and how, who can change the structure, and who will manage its use from here on.

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Once again implementation will link to performance management of systems and processes, and is likely to be driven by the need to manage processes better (see later section - Key Performance Indicators and performance measurement).

Business systems

We have established this is not purely a technical issue, but the IT department will need to be involved in the data management and process control issues. Fundamentally, the existing back-office systems will need to support whatever is adopted and then deal with its maintenance. IT plays a key role, but coding and classification is an enabler right across the organisation. The IT department will have to work closely with managers of all stakeholder functions to ensure the implementation works for all. The issue then becomes part of the long term IT and business-as-usual strategy.

Impact on business strategy

How does data impact on the business strategy? Primarily, because it:

- Makes the business flow
- Puts meaningful information and analysis in the hands of the appropriate people
- Means people can take better decisions
- Makes performance and control transparent
- Means processes and decisions happen faster
- Means the boundaries of the business processes can be extended

All of these contribute to making an organisation competitive and can enable the identification of new strategic opportunities.

Cross referencing with existing structures

It is likely that there will already be coding and possibly classifications in place, which serve a valid business purpose or cannot be changed. Examples of this are finance and inventory codes. Some may use purchasing facing codes, such as supplier generated item codes, international conventions (e.g. CPV and UNSPSC) and part or catalogue codes. The first issue here is that it is neither desirable nor sensible to replace what you already have. The way forward is to phase in the new structure and cross-reference it so that the data becomes meaningful. This can be done in-house, but would be much better done by highly specialist organisations that have the knowledge, methodologies and standards to make it a quick and accurate exercise.

Resource implications

Once the value of coding and classification has been established, the implications of its adoption on the business have to be balanced.

Table 3 sets out some of the key questions that an organisation will need to answer before it pushes ahead with adopting a coding and/or classification hierarchy.

Clearly, it is not possible to answer each of these points and the situation will vary from organisation to organisation. Part 3 deals with many of these issues at a macro level. Attitudes towards business improvement and the way you manage change will count greatly in your evaluation of the impact and the value of coding and classification. However, the presence of these issues should not be a pointer to a 'do nothing' option. The overriding objective is to find a coding and classification structure that suits your particular business need and situation.

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Strategy	• Does new coding and classification enable the Purchasing strategy and support delivery of the organisation's business plan? • Have the full range of KPIs for purchasing been introduced and how will the new classification assist in their measurement?
Culture	• Are people ready to be part of a truly joined up business? • Can issues of ownership be managed? • Will people perceive it as an overhead rather than a value contributor? • How will the new classification be presented and sold?
Competing needs	• Where does this stand among other development projects? • How far does it contribute to meeting performance targets or organisational development plan?
Cost	• Will additional overhead cost in a new layer of management and administration be incurred? • Are license or subscription costs to implement and manage a classification structure being incurred? • Is there a need or case to outsource all or part of your data management to implement the structure? • Is there a need to cross reference to existing classifications, and if so, who will do it?
People	• How much training and development will people need to adapt to new ways of working? • Who will map the classification onto the business? • Who will be responsible for setting up and establishing codes
Time	• How much time will be added to initial development and ongoing business-as-usual? • Over what period of time will the new classification be phased in?

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Coding and Classification: Maximising Returns from Purchasing Data

Benefits Realisation

Key Performance Indicators and performance measurement

There is now broad recognition on the contribution of the purchasing function to business efficiency, effectiveness and the quality of service delivery in most organisations. At a macro level Key Performance Indicators (KPIs) should be developed beyond simple transaction processing to include organisational performance in areas such as:

- Contribution to overall corporate strategy
- Purchasing strategy and policy
- Internal and external stakeholder relationships
- Use of technology and information

Measuring a moving target

For many organisations devising appropriate indicators to cover these areas is challenging for two reasons. Firstly, organisations are dynamic, meaning that the KPIs have to be constantly reviewed and changed to suit circumstances. The other challenge comes in trying to extract data and information from the organisation and its IT systems to support the accompanying measures. Often measurement is fragmented by using a mixture of manual data and data from the back-office systems.

Organisations can find themselves in this situation because of:

- Limited coverage of the corporate purchasing function as to the range of products and services that it can directly influence
- Back-office or Enterprise Resource Planning (ERP) systems designed to meet the needs of other stakeholders with purchasing seen as an add-on
- Absence or inflexibility of essential functionality in the IT systems to support the needs of the modern purchasing office
- Purchasing being deprived of investment and modern IT support due to its lack of recognition in the organisation

Seeing the bigger picture

For some, performance measurement has been confused with management reporting. Extracting data from back-office systems on routine, operational transactions (e.g. numbers of overdue orders, defect/return rates and supplier profitability) can usually be achieved by using standard reports. This is of limited use. Unless the organisation concerned has visibility of all purchasing spend (including the high value contracts, consultancy deals and capital spend), then typically the picture given by the analysis is for the low value/high volume spend only.

Even though the service, relationship development and people aspects of performance measurement are very important, most organisations tend to focus on the cost savings and risk avoidance aspects when judging how their purchasing operation is performing. Broadly speaking, an organisation will need a clear picture of the following in order to achieve this:

- The types of products and services purchased by the organisation, and the total costs (direct and indirect) involved in their acquisition
- The supplier responsible for provision of the products and services together with their performance against contract
- Any exposure that the organisation faces in terms of security of supply, market instability, stability of existing suppliers and availability of new suppliers

For small organisations with limited transactions and restricted ranges of products or services it might be possible to do this by way of a combination of IT tools and manual interpretation of data records. However, for most organisations with a multi-million pound spend, it means using an effective and meaningful classification system to cover the key aspects.

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Products/services

Classification systems are devised to give the appropriate level of analysis taking into account spend levels, transaction numbers, potential for savings and risk factors. For example, few organisations would wish to analyse stationery or office furniture much beyond these levels, as there is little to be gained in terms of savings and risk reduction. However, temporary staff, building maintenance, construction and consultancy work and other outsourced services will need a much greater breakdown, since, as costs are higher, the potential savings and greater risk exposure are also much higher.

Suppliers

Although most organisations already code suppliers, these are either system generated or designed to satisfy the accounts payable department. The purchasing requirement for supplier analysis is more detailed, supporting among other things, parent child relationships between suppliers, potential range of products and services on offer, multiple supply points, Small and Medium Enterprises (SMEs)and voluntary sector (sometimes called the third sector). Also, there is a strong need to cross reference these with products/ services since many large organisations have little idea of who supplies what, except by trawling through historical data.

Costs Savings

Many have debated the question of "what is a saving?" There is no simple answer. We merely point out that for a saving to be measured there needs to be different fixed points along the purchasing cycle (e.g. estimated price, quoted price, ordered price, discounted price and invoice price). This is sometimes called the price type qualifier. Many IT systems struggle to support this type of performance measurement, beyond recording an ordered and invoiced price. Savings that result from cost avoidance, bid clarification and elimination of contract leakage cannot be supported as standard. The base line is the creation of a hierarchy suited to supporting performance measurement at all levels and the breakdown and analysis of operational spend data. Performance measurement is about easily extracting data/information to support the agreed measure and having confidence in its source, reliability and accuracy before taking actions to resolve problems. For many, simply getting any data/information has been the measure in its own right.

Gaining stakeholder buy-in

Viewing coding and classification as a technical issue has been a costly misapprehension for lots of organisations. It has created problems for them downstream in entering the world of performance measurement. They often find that their back-office or ERP systems are simply not geared up to support the demands of strategic purchasing. Some software suppliers offer data warehouse and business intelligence (BI) solutions as a way round this problem, but these do little when the quality of data stored is at best dubious. Also, it is important to remember that these solutions can only extract what you already store – interfacing with paper records is not yet possible!

Another solution offered is to use the coding structures in accounting systems (usually the General Ledger). Unfortunately, these rarely contain the right level of detail and coverage needed for purchasing performance measurement, as they are finance not purchasing facing.

Early stakeholder buy-in to the importance of coding and classification is crucial if progress is to be made with realising "intelligent purchasing". These are the suggested steps for buy-in:

- **Who are the stakeholders, apart from purchasing?**
  Senior management including finance, audit, performance and IT are the key groups to include in the buy-in process. In some businesses, marketing, sales, production and materials management will also have a valid input to make

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- **What do the stakeholders require?**
  The debate has to be pitched around Key Performance Indicators (KPIs) for purchasing and how they will improve things for each of the stakeholders concerned. This is the only thing that will create interest and potential buy-in. Trying to sell the merits of a new classification system for purchasing is worthy, but will not be regarded as a top priority by anyone.
- **How do we measure the indicators?**
  Closely associated with the KPIs is the ways in which they will be measured and what goes into delivering those measures. If the importance of KPIs for purchasing is understood and 'sold', then how they will be measured will also receive a receptive hearing.
- **What are the pre-requisites for effective measurement?**
  Only at this point should coding and classification be raised, since most people will grasp the need for sensible classification and coding structures and these can be illustrated by reference back to the proposed measures (see example in the next section)

The key to success here is firstly ensuring that everyone understands why coding and classification are an integral part of successful business performance measurement and then ensuring the following:

- The introduction of a new classification and/or coding structure is automated and does not require large amounts of manual data collecting for re-keying
- The proposed structures are simple and flexible and support the needs and expenditure profile of the organisation
- The capability of existing IT systems to support the new structure is understood and an impact analysis carried out
- The requirement is scheduled into the next upgrade or replacement system
- The benefits of the change are documented, sold and understood by all those that are affected

Educating solution suppliers

Educating potential solutions suppliers will be a major challenge for those organisations that understand the clear benefits that using standard coding and classification can bring to them. The proliferation of e-procurement solutions in recent years following on from the general paucity of standard core purchasing functionality in ERP solutions has shown the value of education. The UK Government made a big effort to start this process in the early 1990s with its PURSUIT Project setting out standard core specifications for future purchasing IT systems. This included adoption of a common approach to purchasing coding and classification (NSV) as early as 1991. Unfortunately, few organisations understood the value of purchasing at that time and were far from ready to make the investment in supporting IT systems.

That situation has now changed, with purchasing now being the current favoured issue across all sectors. Since this booklet was first published in 2002, there has been a big reduction in the number of e-procurement suppliers and the rationalisation of the proliferation of competing e-market places. Suppliers are keen to please and one or two are showing signs of understanding the real needs of a strategic purchasing office, rather than a simple order placing environment

The most effective strategy for getting suppliers to supply and support (as standard) coding and classification is for organisations to collaborate perhaps in a vertical market or niche sector and agree on a structure. This makes it attractive for potential suppliers to embrace that particular coding structure or classification as a standard part of their potential solution. It does not mean that everyone has to use the codes and classifications in the same way. Participating organisations can still use different item codes, bar codes and any other convention they require for whatever purpose. Suppliers can at least understand that it is advantageous to provide a standard to meet

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the requirements of the given sector and its wider take-up will help mitigate against any risks arising from adopting it. This principle is the same that is being used to drive forward data and information standards for eXtensible Mark-up Language (XML) for electronic trading.

Educating internal stakeholders

Demonstrating (and therefore educating) the benefits of coding and classification to internal stakeholders can only be done on the back of KPIs and performance measurement (see previous section —Gaining stakeholder buy-in). Here is an illustration of how it might be done using just one indicator:

The previous example is for illustrative purposes only, but it does not require much imagination to see how and why accurate classification of services and price types will add real value to performance measurement at the highest levels in most organisations.

The message to all stakeholders remains that purchasing coding and classification is a business not a technical issue. Ignore this at your peril.

Establish the Key Performance Indicator	The value of expenditure of management, business and IT consultancy, which has been let following involvement from a part qualified or qualified Purchasing specialist.
Establish how it will be measured	The ultimate goal might be 100% of expenditure, but clearly there is some information and data that needs to be ascertained before this can be measured accurately and consistently on an on-going basis!
Establish information/data required (and source)	Names of the specialists, what was included under the consultancy types, which departments were involved, which suppliers were awarded the contracts, estimated, bid, contract, invoiced and payment values.
What needs to be coded or classified	Consultancy types can be broken down into numerous sub-groupings, depending on the organisation and often overlap into the field of professional services. Once this is done a clear picture will emerge of where the money is going, who is spending it, whether best value for money is being achieved and where purchasing expertise needs to be targeted. For many organisations, consultancy spend can run into £ millions and account for a large percentage of services spend. Also, note that five different value (price) types may be required in this example.

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Making the Choices

Issues for consideration

All organisations vary in their purchasing profiles, structure and business priorities and it is, therefore, inappropriate to prescribe a model structure. The needs and complexity of a manufacturing business will be different from a service one, such as an insurance company or a public sector body. However, there is a lot of commonality to be found between organisations. Analysis shows, for example, that the purchasing profile for a prison is very similar to that of a hospital, which in turn has considerable overlaps with a higher education institution.

The immediate message to every organisation is always avoid inventing your own coding structure. The only exception is where the range of purchasing spend is so narrow and low in value that the structure can almost be written on a side of A4 paper. All organisations that have evolved coding structures over the years may complain about imperfections in the hierarchies, but they invariably advise against "wheel re-invention". Off the shelf classification structures are rarer, and in some instances a bespoke or sector specific model may be preferable and more cost effective, particularly if it is low maintenance. The use of ProClass by UK local government is a good example.

People encounter codes and classifications in everyday life ranging from catalogue codes to telephone numbers. From car registrations and road numbers to banks and national insurance numbers, codes and classifications are a part of our lives and people readily accept them as they each have a reason or purpose and, in general, make our lives easier.

Quite a few "off the shelf" coding structures can be acquired at little or no cost to an organisation. Each has their imperfections, but suitable compromises can usually be found. It may also be possible to use a suitable "cut" of the structure so that only those elements required are loaded into the back-office and ERP systems.

Suggested qualities

The immediate qualities that an organisation should be seeking from a coding and classification structure are:

- A good logical structure, with optional drill down hierarchies
- Long term viability, independence and availability of the coding and classification structure
- The ability to enable updates to be made quickly, cost effectively and accurately
- The ability to influence code development (i.e. can you influence changes to meet your needs)
- Cost effective, the cost of maintenance is not excessive (including provision of new codes and file updates)
- Flexibility with the capacity to expand and adapt without major revisions to the underlying structure
- No duplications of codes, descriptions or headings
- Supported by quality control (to ensure that it remains up-to-date) and security procedures
- Capability of supporting electronic trading (essential for coding)
- Consistent, i.e. standard rules and policy have been applied to the whole structure, including the descriptions and main headings
- Can be implemented so that it is easily accessed and understood by all users and stakeholders
- Beneficial, i.e. provides clear benefits specifically to the organisation (e.g. supporting performance measurement, aggregation opportunities and reporting)
- Incorporates service levels provided by the classification provider
- Has a wide coverage, i.e. it is capable of supporting the purchase of products, services and works and has a relationship to any existing coding and classification implemented to support organisational needs
- Generic rather than supplier specific (i.e. the codes for batteries, for example, can be applied to those from any supplier)

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- Can be cross referenced with other codes, such as supplier specific codes, international reporting codes (CPV in the public sector) and production codes
- Is capable of being supported within all relevant, existing back-office systems

These qualities and features can be used by any organisation as the starting point for the selection process of an appropriate coding and classification structure.

Major generic structures for products and services
It is not the purpose of this document to examine in detail all the potential coding and classification structures available and their relative pros and cons. Table 4 sets out some of the major structures available.

Provider	Structure	Comment
United Nations Standard Products and Services Code (UNSPSC)		
United Nations Development Programme www.un-spsc.net	Eight digits, e.g. 44.12.19.03 equals	Pen refillsThe UNSPSC™ was developed jointly by the UNDP (United Nations Development Programme) and D&B (Dun & Bradstreet Corporation) in 1998. The latter came to an amicable agreement with ECCMA in October 2002 regarding the use of the rival Universal Standard Product and Services Classification (UNSPSC) which has now been unified into a single structure. EAN International (non profit making)
EAN (UCC-Uniform Code Council in the US)		
www.ean-int.org	The general form of the EAN/UCC-13 number, issued in the UK is 50 12345 67890 0. Where 50 is country of issue, 12345 is the unique company identifier, 67890 is the part allocated by the company as they see fit, to define the product, and the last digit (0) in this case, is a check digit. e.g. 50 11247 02166 1 equals Parker Quink black ink in 2fl oz glass bottle.	The EANUCC System has been in use since 1974, enabling over 900,000 organisations in 129 countries worldwide to improve their business efficiency.
North Atlantic Treaty Organisation (NATO)		
NATO – managed in UK by UK National Codification Bureau www.ncb.mod.uk	Thirteen digits, e.g. 5905-00-7345199 equals RESISTOR, FIXED, FILM	Well-established, manufacturer specific code. Defence orientated. New codes, however, need world wide agreement.

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Provider	Structure	Comment
Common Procurement Vocabulary (CPV)		
European Commission www.simap.eu.int	**Eight digits plus check digit, e.g. 15961100-3 equals Lager**	**Used for Public Sector EU reporting derived from the UN Common Procurement Classification. Now adopted as an EU standard for Public Sector Procurement. Crown Copyright, managed by Coding International Ltd**
National Supplies Vocabulary (NSV)		
www.codinginternational.com	**Three alpha, four numeric, e.g. RGJ0116 equals Paint, Gloss, Acrylic, 400ML, Green, Aerosol**	**Devised by the NHS in the 1970s. Rationalised in the 1990s and used as the defacto standard by UK Government. Heading Classification with Item Codes and Standardised Descriptions. Maintained within Track-IT Database and cross-referenced to other main coding systems. Previously managed by the NSV Centre, NHS which was privatised in 2000 and renamed Coding International Ltd.**
ProClass		
Crown Copyright, managed and owned by Local Government Regional Centres of Excellence www.rcoe.gov.uk	**No digits. Three level hierarchy designed for classification purposes only with emphasis on mirroring the local government expenditure profile**	**Devised in 2006 by the nine Regional Centres of Excellence. It is particularly designed to support both Expenditure Analysis and Contracts management and alignment. It is mapped to NSV, UNSPSC and the Thomson structures.**
North American Industry Classification System (NAICS) also known as Standard Industrial Classifications (SIC)		
NAICS Association www.naics.com	**Six digits, e.g. 3-35-9-11 equals Manufacturing Electrical Equipment other battery**	**Beginning in 1997, the Standard Industrial Classification (SIC) was replaced by the North American Industry Classification System (NAICS). This six-digit code is a major revision that not only provides for newer industries, but also reorganizes the categories on a production/process-oriented basis.**
United Nations Common Coding System (UNCCS)		
United Nations Development Programme www.uncsd.org	**Six digits, e.g. 442511 equals cutting machines for woodworking**	**The UNCCS (United Nations Common Coding System) for Products and Services was developed on the basis of the Central Product Classification system, which was initiated by the UN Statistical Office. The CPC was developed to provide a framework for international comparison of statistics on products, services and assets, and is one of the few coding systems covering both products and services.**
Thomson Classifications		
Thomson Classifications www.thomsondirectories.com	**Five digits and a heading, e.g. 84710 Window Cleaners, digits normally not seen**	**A classification of companies by industry mainly used in Thomson telephone directories. Can also be used as a classification of suppliers.**

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Sub-contracting the coding and classification service

Some organisations have decided that once they have selected the coding and classification hierarchies they require, they will sub-contract the provision and management of those hierarchies to a third party organisation. Matching and cross-referencing codes may appear straightforward, but reality shows that it is time consuming and requires consistency and well defined and controlled operational procedures. In 1991, after selecting the NSV standard for its standard purchasing classification, the UK Central Government sub-contracted the provision of codes to the (then) NHS NSV Centre. The main reasons for adopting this route set out in the supporting business case included:

- It was a cheaper option than employing a person in-house to manage the classification and maintenance work
- Provision of a central focal point to maintain common standards and consistency of approaches (coding and classification allocation and description preparation is far from easy)
- Cross-referencing to other classifications could be done only once, reducing costs and improving the quality of information
- Knowledge and skill sets to undertake the work could not be readily found in-house
- Allocating new codes was done as a part of a national rather than individual approach

There are some organisations that carry out coding and classification work as a service and this option should be investigated against the in-house option. Further advice and guidance can be obtained from organisations listed in the appendices.

The next steps

The most important aspect of adopting a purchasing coding and classification structure is convincing senior managers of its value to the organisation. Only then will active support and financial support be given to the exercise. The danger for many will be that it ends up in IT or simply be regarded as a purchasing only fad. Most organisations should be capable of undertaking the selection process and there is a wealth of information and advice available at relatively little cost from the specialist operations listed in the appendices.

The main high-level steps involved in making good progress are as follows:

- Decide on the level and type of coding and classification required
- Establish the need and shortlist potential options
- Carry out cost benefit/analysis, risk assessment and change impact analysis and incorporate in the business case
- Enlist support from other key stakeholders for the business case and the reasons why purchasing coding and classification is essential to the organisation
- Obtain approval for the business case at senior level
- Complete the selection process for the coding and classification structure (checking the ability of IT and the systems providers to support it)
- Carry out any new coding and classification work that needs to be undertaken
- Get agreement for the implementation timetable – and stay with it until complete
- Ensure that a senior purchasing manager is responsible for the policy and direction of future changes
- Attempt to collaborate and standardise within your sector or trading community
- Decide whether to use an outsourcing company or code in-house

First reference should be made to CIPS. This is a specialised area and a lot of time and money can be spent in hiring management and IT consultants and software providers that may well have excellent purchasing credentials but have incomplete subject knowledge and experience.

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CIPS KNOWLEDGE WORKS

Knowledge How To

Appendices

Useful Organisations

Address	Telephone	Email	Website
EAN International			
145 rue Royale **B - 1000 Brussels** **BELGIUM**	**+32.2.227.10.20**	**info@ean-int.org**	**www.ean-int.org**
e Centre			
10 Maltravers Street **London** **WC2R 3BX**	**+44(0) 20 7655 9000**	**info@e-centre.org.uk**	**www.e-centre.org.uk**
Chartered Institute of Purchasing & Supply			
Easton House **Easton on the Hill** **Stamford** **Lincolnshire** **PE9 3NZ**	**+44(0) 1780 756777**	**info@cips.org**	**www.cips.org**
Office of Government Commerce (OGC)			
Trevelyan House **26 – 30 Great Peter Street** **London, SW1P 2BY**	**+44 (0) 845 0004999**	**ServiceDesk@ogc.gsi.gov.uk**	**www.ogc.gov.uk**
SIMAP			
Not available	**+352 29 29-44404**	**simap-helpdesk@opoce.cec.eu.int**	**www.simap.eu.int**
Office of the e-Envoy (Gov Talk)			
Not available	**+44 (0) 20 7276 3320**	**govtalk@cabinet-office.x.gsi.gov.uk**	**www.govtalk.gov.uk**

Document Background

This document was originally published in November 2002 with the active support and contributions of an ad hoc body, the CIPS Procurement Classification Working Group. Its terms of reference were to:

- Detail the business issues associated with adopting Purchasing classifications in an organisation
- Identify the systems areas where classifications may be required
- Document the benefits to be accrued and constraints for the purchasing profession from using coding and classification
- Define the criteria for deciding whether coding and classification is necessary to an organisation and the evaluation issues if making a selection from multiple standards
- Draft and publish appropriate guidelines for organisations wishing to adopt purchasing classifications

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Appendices

The CIPS Procurement Classification Working Group comprised

Ken Cole	Strategic Procurement Services (Convenor)
Liz Watkins-Young	Rubus Services Ltd
Terry Ashmore	Coding International Ltd
Gareth Jones	Comparator Ltd
Rachel Hodson-Gibbons	NHS Purchasing & Supply Agency
Amber Ritson	Office of Government Commerce
Carl Hodgkinson	HSBC
David Turner	HSBC
Martin Compton	Comparator Ltd
Roger Till	e Centre
Helen Alder	CIPS

It has not been possible to re-establish the group for this update. However, the authors are grateful to Terry Ashmore (Coding International Ltd) and Rowena Ward (Strategic Procurement Services) for their help and contributions in updating this document.

Author Profiles

Ken Cole, FCIPS

Ken is a founder partner of Strategic Procurement Services, formed in October 2001 and is currently on a part time secondment as the Director of the London Centre of Excellence. He has carried out a range of assignments for over twenty public and private sector organisations in the last five years, most of which have been for senior management teams and which have often led to significant changes being adopted. One such example was developing the business case and operational model for the Association of Essex Chief Executives in 2003 which led to the creation of the Procurement Agency of Essex (PAE). Ken was invited to become its first Director in 2004, and this model is now held up by both central and local government as the ideal model for voluntary collaboration.

Ken worked for ICT solutions provider QSP from 1995 until 2001. He held a number of senior positions at QSP, mainly relating to Consultancy and Sales. Prior to joining QSP, Ken had a highly successful career in the Civil Service, serving in the Ministry of Defence, Cabinet Office, HM Treasury and Home Office. He was the architect of the Government's PURSUIT Project before becoming Project Director for the Home Office PROMIS Project in 1992. The latter project included introducing one of the first EDI pilots into Government and pioneering a radical programme of cultural change to support procurement.

Ken has been a member of the Chartered Institute of Purchasing & Supply (CIPS) since 1982 and was elected as a Fellow in 2005. He is a Liveryman in the Worshipful Company of Information Technologists having received the Freedom of the City of London in 1994
Ken can be contacted at ken@strategicps.co.uk

Liz Watkins-Young, MCMI

Liz is a Director of Rubus Services Ltd, a consultancy and research organisation formed in 2002 and based in the West Midlands. Specialising in market development, supply-chain and client engagement, and collaboration, Liz has worked on a wide range of research, development, strategy and implementation projects for public sector commissioners, commercial clients and Third Sector agencies. With over 50 project assignments completed by Rubus, Liz's work with the public sector is increasingly focused on supply-side development and engagement of the SME and Third Sector community, and the performance improvement of collaborative structures and partnerships.

Prior to forming Rubus, Liz held a number of private sector management positions in the IT and professional services industries, working in the UK, Europe and USA in business development, operations and financial management. A member of the Chartered Management Institute and Chartered Institute of Purchasing & Supply, Liz sits on a number of economic development and enterprise working groups in the West Midlands.
Liz can be contacted at liz.wy@rubus-services.com