In Pursuit of Excellence: A Survey of Irish Manufacturing and Service Organisations

Dr. Eileen Drew[*1]

Introduction

In reviewing the adoption of Total Quality/Business Excellence approach in Irish companies it is worth noting that most traditional definitions of "quality" refer to a static (and presumably achievable) state, for example the American Society of Quality Control and American National Standards Institute define quality as "the totality of features and characteristics of a product or service that bear on its ability to satisfy a given need". Dale (1994: 10) uses the broader definition of TQM from BS.4778: Part 2 (1991) as a "management philosophy embracing all activities through which the needs and expectations of the customer and the community, and the objectives of the organisation are satisfied in the most efficient and cost effective way by maximising the potential of all employees in a continuing drive for improvement". Hence the shift towards defining quality to encompass the "total concept" that is end product/services as well as the provision of a service or product to customers and other employees within the company. The Japanese influence on Total Quality has further emphasized the fluid and on-going quest for continuous improvement (Imai 1986).

These conceptualisations of Total quality are important in examining the understanding, and adoption, of Total Quality/Business Excellence in Irish companies. Internationally, Total Quality has been studied from a micro perspective (in Case Studies of individual companies) through to macro levels (in small to large-scale company sur-

---

* Department of Statistics, Trinity College Dublin.

veys). This paper draws upon data collected through two large scale surveys, drawing upon previous research by Taylor (1995) in Northern Ireland, Whyte (1993) in Scotland and Whyte and Witcher (1992) in Northern England. When embarking on the study, no nation-wide surveys had been carried out in Ireland, hence this research represents a benchmark against which future studies can be gauged. It also relates to international surveys (for example the work of Zairi, Letza and Oakland 1994; Goh and Ridgway 1994; Davison and Grieves 1996; Sullivan-Taylor and Wilson 1996; Ghosh and Hua 1996) in manufacturing and service industries. The Irish study is one of the few of its kind to integrate the results of manufacturing and service surveys and to compare relative rates of progress towards achieving Total Quality/Business Excellence in those sectors in a national study.

Objectives

The objectives of this research were to investigate the degree to which quality initiatives, including quality standards, have been adopted in Irish manufacturing and services organisations. More specifically, the study examined the:

- award and impact of quality certification;
- levels of employee feedback;
- customer focus;
- use of quality improvement techniques and methods;
- employee involvement and rewards systems;
- relations with suppliers;
- adoption of a Total Quality approach;
- characteristics of Total Quality companies, according to sector, size and ownership.

Survey Methodology

The survey was conducted in two stages. The first survey of manufacturing companies throughout the Republic of Ireland was undertaken in 1995. The second phase, in 1996, surveyed Irish public and private sector service organisations. The questionnaires were developed, and piloted, based on an international literature review as well as ex-

pertise gained from in-depth Case Study research, still in progress, within a number of "best practice" Irish companies.

Stage 1: Manufacturing Companies

The manufacturing companies were selected from the FORFÁS database using stratified random sampling from the 6526 companies listed. Probability sampling was used where each company in the database had a non-zero chance of being included in the sample. Stratified random sampling, by size category and sector, was then used across the eight NACE (Nomenclature Générale des Activités Économiques dans les Communautés Européennes) industrial sectors. All large and medium sized companies were selected since they comprised only 7.5 per cent of the total included in the database. Previous research had suggested that these companies were most likely to be utilising quality improvement initiatives and it was therefore important to achieve a high response rate from them.

MANUFACTURING SAMPLE

Sectoral Category	% Selected	Sample Size
Clothing and footwear	22	82
Electronic engineering	22	141
Food and drink	22	227
General manufacturing	22	438
Non-electronic Eng.	22	307
Pharmaceuticals	100	101
Services	22	184
Textiles	22	51
Size Category	**% Selected**	**Sample Size**
Large (500+ employees)	100	34
Medium (100-499 employees)	100	453
Small (<100 employees) (expected response rate 25%)	17.3	1,044
Total Manufacturing Sample Size — 1,531 companies		

A detailed questionnaire was sent out in January 1995 to all companies, accompanied by an individually hand signed letter on headed Industrial Statistics Unit, Trinity College note paper, addressed to the named Chief Executive of the company. This letter set out the objectives of the survey and urged the recipients to respond by completing and returning the questionnaire, using a FREEPOST return envelope.

In all, 523 companies returned the questionnaire giving a response rate 34 per cent, which is high for a postal survey.

	Number of Respondents	Percentage of Total
Large[2] companies	40	8
Medium companies	204	39
Small companies	279	53

Stage 2: Service Companies

The 1540 service industries sample as drawn from two sources: Dun and Bradstreet's Database of Service Companies and the IPA Yearbook/Diary representing the following sub-sectors:

- Financial Services
- Professional Services
- Leisure, Hotel and Catering
- Retail Distribution
- Wholesale Distribution (10 per cent)
- Personal Services
- Public Services
- Other (inc. manufacturing)

Services Sample

Companies with fewer than 20 employees were excluded since the manufacturing survey had shown that these companies were most vulnerable to liquidation and were most likely to find the questionnaire irrelevant to their small scale operations. Hence, with the exception of Wholesale Services (for which a 10 per cent sample of 450 companies was taken), all listed companies were selected from the

Dun and Bradstreet database in the other sub-sectors (i.e. a full census of listed companies). Since this source of organisations omitted the public service sector, the IPA Yearbook was used to select all: Government Departments, County Councils, Health Boards, Hospitals, Third Level Educational establishments and State Bodies, 149 in all. This gave a final sample size similar to that used for manufacturing companies.

A questionnaire adapted to service company conditions was mailed in January 1996 to all the sample service organisations, accompanied by an individually hand signed letter on headed Industrial Statistics Unit, Trinity College note paper, addressed to the named Chief Executive or equivalent (e.g. Departmental Secretary, County Manager) of the organisation. This letter stressed the objectives of the survey and urged the recipients to respond by completing and returning the questionnaire in the FREEPOST envelope.

In all, 553 service organisations returned the questionnaire giving a response rate of 36 per cent, which is a good level using a postal questionnaire.

	Number of Respondents*	Percentage of Total
Small companies (20-99)	325	59
Medium companies (100-499)	141	26
Large companies (over 500)	85	15

* Two companies did not respond to the question on size.

The data from both surveys were analysed using SPSS, and merged to facilitate analysis of the total sample of 1076 organisations. In 451 of the companies who responded, it was the Chief Executive who completed the questionnaire. In a further 186, the questionnaire was filled in by the Quality Manager. For the remaining organisations, the questionnaire was completed by another person (315), the Operations Manager (79) or the HRM/Personnel Manager (45).

Operating Environments of Surveyed Organisations

Unionisation

Across both sectors, an equal proportion of companies were unionised (497) as were not unionised (496) — 46 per cent. The remaining

8 per cent were partially unionised (81). The level of unionisation was higher in manufacturing companies at 55 per cent compared with service organisations of which 39 per cent were unionised.

Organisational Restructuring

Most organisations (755) had undergone restructuring during the previous ten years, 70 per cent. Organisations were asked whether the number of employees had changed since restructuring. In 58 per cent of those organisations their number of employees had increased, while 28 per cent had reduced the number employed.

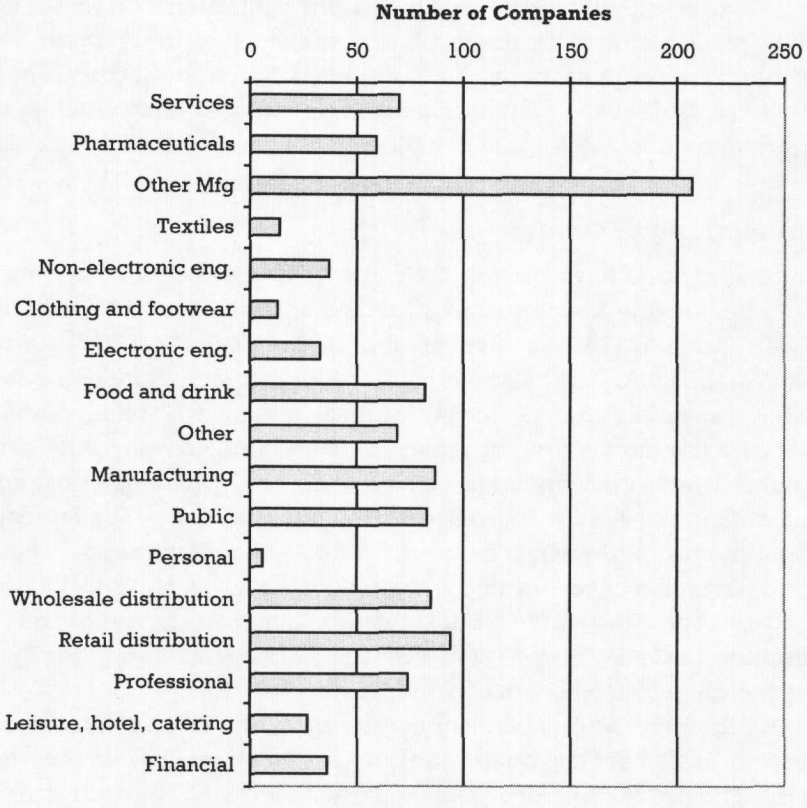
Over one-third (36 per cent) had increased the number of levels/grades since restructuring, compared with 24 per cent of organisations which had reduced the number of levels/grades. Manufacturing companies were more likely to have reduced the number of grades/levels, than services, and were also less likely to have increased them. The high proportion of companies which had increased the number of levels and/or grades was rather surprising. This may be due to the degree of business expansion, particularly in the service sector, which is indicated with the rising demand for employees. It may also reflect a degree of diversification and need to facilitate new product and/or service functions.

Respondents were asked to rank, where appropriate and from a range of options, the major reasons for undergoing restructuring. The highest levels (ranked 1 or 2) on a 5 point Motivation Scale (1 = High) (5 = Low) were scored in relation to "staying competitive", followed by "improved profitability/lower costs/improved efficiency" and "improved product/service standards". Less important were "customer demand" and "company quality initiative". Clearly there were complex and multiple reasons for restructuring.

Sectoral Response

A detailed breakdown of the companies, according to industrial sector is shown in Figure 1.

FIGURE 1: SECTORAL REPRESENTATION OF ORGANISATIONS IN THE SAMPLE



MAJOR REASONS FOR RESTRUCTURING (N = 1,076)

	Number of Mentions	Percentage of Total
Necessary to stay competitive	646	60
Improved profitability through lower costs/improved efficiency	570	53
Improved product/service stds	558	52
Customer demand	435	41
Part of company quality improvement initiative	421	39
Government/EU driven	64	6
Other reasons	38	4

Strategic Planning

Almost two-thirds of all the organisations (660) surveyed had undergone a strategic planning exercise, 61 per cent. A further 13 per cent were progressing a strategic plan at the time of the survey. Two-thirds of the organisations (706) surveyed had a strategic plan and one-third (362) of the respondent organisations had integrated quality improvement initiatives into that plan.

Functioning of Quality

Various experts have plotted the route or framework for implementing Total Quality in companies (Oakland 1991; Collard 1993; Ciampa 1992). Oakland (1991) expresses this as the "steps to TQM" starting with establishing understanding and seeking commitment to a quality policy, ensuring that the organisational structures are in place to maintain the momentum, devising measures (including quality costs) against which achievements can be assessed, planning, designing and setting up quality assurance systems and further steps to ensure capability through teams, using standards and techniques for quality control, having invested in the training of staff, through to final implementation. The survey questionnaire sought information on the adoption of these "steps" along with a customer and supplier focus, with an emphasis on continuous improvement.

A high proportion of the surveyed organisations had introduced a Mission Statement on quality and/or a quality policy, 68 per cent (736). The percentage of organisations with a Quality Department was over half — 55 per cent (593). Organisations were asked to identify who was responsible for quality. In the light of response from the manufacturing survey, which allowed only one option to be selected as "the most senior person responsible for Person(s) Responsibility for Quality?" from: Chief Executive, Quality Manager, Operations Manager, HRM/Personnel or other, the version of this question was changed for use in the service organisations the question was asked in the form "Who is responsible for quality?".

MANUFACTURING SECTOR (N = 523)

	Number of Mentions	Percentage of Total
Chief Executive	187	36
Quality Manager	189	36
Operations Manager	76	14
Other/Non-response	68	13
HRM/Personnel	3	1

Service sector respondents could tick as many options as were appropriate

SERVICE SECTOR (N = 553)

	Number of Mentions	Percentage of Total
Chief Executive	216	39
Quality Manager	150	27
Operations Manager	138	25
All Staff*	267	48
Other	52	9
HRM/Personnel	53	9
Quality Department*	37	7

* These responses were not included in the questionnaire issued to manufacturing companies.

** Companies could select as many persons/groups as appropriate in services.

In manufacturing, for which the range of responses was more limited, quality was the responsibility of the Quality Manager and Chief Executive among 36 per cent of respondents respectively. In 14 per cent of manufacturing companies the Operations Manager was the most senior person responsible. Another person (including non-response) took responsibility in 13 per cent of manufacturing companies and the HRM/Personnel manager held this function in only 1 per cent of companies.

In contrast the responses differed in services, partly due to the alterations in the question. All staff were deemed responsible for

quality in 48 per cent of these organisations, while the Chief Executive or equivalent was more often involved than in manufacturing by 39 per cent, followed by similar proportions who had assigned the Quality Manager in 27 per cent and/or Operations Manager in 25 per cent of service companies. The HRM/Personnel Manger played a more pivotal role in Quality, accounting for 9 per cent, the same level as for "other persons". The Quality Department was collectively responsible in 7 per cent of service organisations.

Quality Certification

Research has shown that ISO 9000 "does not necessarily signal the journey towards TQM" in small and medium sized enterprises (Williams, 1997). Almost half of the organisations had applied for or been awarded some form of quality certification, (528) or 49 per cent of the total. Manufacturing companies were asked if companies had been awarded a quality standard and 290, or 55 per cent, had done so. Service organisations were asked if they had applied for quality certification and 238 companies responded positively, 43 per cent of the total service respondents. Further information was then sought on the type of certification companies had been awarded. The pattern of awards is set out below:

- **Hygiene Mark** — 16 Service Companies
- **Quality Mark** — 80 Manufacturing and 34 Service Companies
- **ISO 9000 Group** — 260 Manufacturing and 149 Service Companies
- **FDA** — 35 Manufacturing Companies
- **ILAB** — 8 Manufacturing Companies
- **Guaranteed Irish** — 30 Manufacturing Companies
- **Other** — 45 Manufacturing and 26 Service Companies

These figures indicate that some companies have been awarded more than one form of certification. They do not include organisations which have applied. It is clear from this table that certification is more common in manufacturing companies, than in services, and that ISO 9000 certification is the most commonly awarded form of certification even in Irish service organisations.

Impact of Certification

The most consistent and common impact of certification was that it had resulted in better products or services. One-third of all respondents made this claim, in contrast to 5 per cent who claimed it had not had this impact and a further 5 per cent who thought it had only partly contributed. One-quarter of respondents believed that certification had improved the organisation's competitiveness, though 11 per cent claimed that this had not occurred and 6 per cent felt the impact had been partial. Only 13 per cent of respondents believed that certification had reduced the company's costs, while one-quarter felt this had not been the case.

IMPACT OF CERTIFICATION (N = 1,076)

	Number	Percentage
Improved company's competitiveness		
Yes	272	25
No	114	11
Partly	59	6
Non-response	631	59
Reduced company's costs		
Yes	142	13
No	253	24
Partly	42	4
Non-response	639	59
Resulted in better products/services		
Yes	356	33
No	49	5
Partly	49	5
Non-response	622	58

Motivation for Seeking ISO 9000

Given the growing importance of the ISO 9000 group certification, all respondents were asked to comment on their motivation, where appropriate, for seeking ISO. The table below sets out the number and percentage of all survey respondents giving a rating of 1 or 2 on a 5 point Motivation Scale (1 = High) (5 = Low).

Organisations rarely seek certificate via ISO 9000 for only one reason, many may have several reasons for applying. The most important motivator was to use the ISO standard as part of a company-wide quality improvement initiative, selected by 35 per cent of all respondents. Of almost equal importance was to improve product or service standards, accounting for 34 per cent of respondents. Customer demand for ISO certification was not much more important as a motivator than staying competitive, 28 per cent and 27 per cent of respondents respectively. The low response (18 per cent) to improved profitably, through lower costs and/or improved efficiency, reinforces the finding in relation to impact of certification which companies recognised was unlikely to lead to reduced costs. These findings support the conclusions by Quazi and Padibjo (1997) that ISO 9000 can be a stepping stone towards TQM. Bradley (1994) reiterates this in claiming that ISO 9000 provides a "start to the TQM journey". However it should be noted that "in motivational terms the effect of a 'standards only' approach may be discouraging if it fails to address the need to motivate and enable employees, through education and training, to want to improve the quality of their output" (Stuart, Mullins and Drew 1996).

MOTIVATION FOR SEEKING ISO 9000 (N = 1076)

	Number of Mentions	Percentage of Total
Quality improvement initiative	378	35
Customer demand	303	28
To stay competitive	295	27
Improve profitability	190	18
Improve service standards	369	34
EU/Government driven	41	4
Other reasons	12	1

Understanding of Total Quality

Of the total respondents 785, or 73 per cent, were "aware of 'Total Quality' concepts". These respondents were then asked to select what they understood by this term. The results, using responses already tested in a study of companies in Northern Ireland (Taylor 1995), are show in the following table:

UNDERSTANDING OF TOTAL QUALITY CONCEPTS (N = 1076)

	Number of Mentions[3]	Percentage of Total
Customer focus of all business processes	263	24
Continuous improvement through problem solving and teamwork	367	34
Guarantee high quality products and services	132	12
A new name for not so new management practice	56	5

Just over one-third of all respondents (41 per cent of all manufacturing companies) believed that the concept of Total Quality meant the "continuous improvement through problem solving and teamwork". One-quarter felt that it implied "making the customer the focus of all business processes". Hence 58 per cent of all respondents saw TQM as emphasising how things are done, compared with 12 per cent who thought it related to the results in "guaranteeing high quality products and service". Only 5 per cent of the sample respondents took the cynical view that it was " a new name for a not so new management practice".

In Taylor's study (1995), based on a sample of 113 organisations practicing TQM, 36 per cent responded "customer focus", compared with 36 per cent of the 818[3] (sub-sample) companies who responded to the question in the Irish survey. A much larger proportion of N. Ireland companies (56 per cent) believed that Total Quality was related to continuous improvement, compared with 45 per cent of the sub-sample aware of Total Quality. A higher proportion of the Irish sample (16 per cent) believed that Total Quality was about guaranteeing high quality products and services, compared with 7 per cent of the N. Ireland companies. Finally, the proportion of the Irish sub-sample who believed that Total Quality was "a new name for a not so new management practice " was significantly higher (7 per cent) than in N. Ireland (1 per cent)

Adoption of Total Quality/Business Excellence

The level of adoption of the Total Quality approach (n = 1076) was as follows:

- 137 service organisations — 25 per cent of all survey respondents
- 205 manufacturing companies — 39 per cent of all survey respondents
- **342 of all organisations — 32 per cent of all survey respondents.**

TQ Adoption According to Sector

Of the 1,076 sample companies, 32 per cent claimed to have adopted a Total Quality approach. This level compares with 60 per cent of companies employing over 300 employees in a survey of TQM in Northern England (Whyte and Witcher, 1992) and 25 per cent of companies with TQM in place, and 40 per cent who had recently started in a Scottish survey (Witcher, 1993).

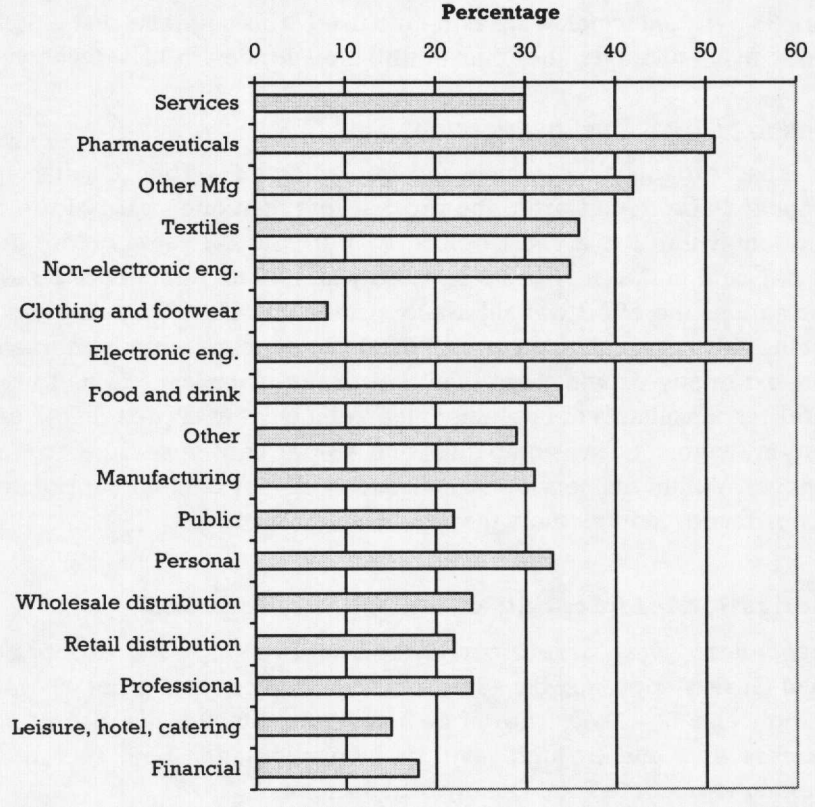
As anticipated, the level of adoption of Total Quality concepts was higher in the manufacturing sector companies, despite the fact that these companies were surveyed a year before those in the service sector. A breakdown of Total Quality organisations by sector is shown in Figure 2. Within manufacturing, the sub-sector which had the highest adoption level was electronic engineering (55 per cent), followed by pharmaceuticals (51 per cent), other manufacturing (42 per cent), textiles (36 per cent), non-electrical engineering (35 per cent), food/drink (34 per cent). The lowest levels of adoption in manufacturing were in clothing/footwear (8 per cent) (Figure 2).

Within service organisations the level was more consistent at 20-25 per cent for most sectors. The exceptions were personal service (33 per cent) in which there were only 6 companies which responded and leisure/hotel/catering (15 per cent) and financial services (19 per cent). Lower rates of TQM adoption in services have been well documented. Sullivan-Taylor and Wilson (1996) have pointed to the paradox of implementing TQM in the services sector where "moments of truth between employee and customer are more frequent and visible" yet conversely the service sector is seen to be more difficult in terms of TQM adoption. Services tend to be intangible; production and consumption of many services occur simultaneously; the service may not be separable form the seller and the customer may need to be involved in the service sought. Lewis (1994) has stressed that service quality concepts and frameworks developed for the service sector are applicable to *all* organisations.

SIZE OF TOTAL QUALITY COMPANIES

	Number	Percentage of Size Category
Small companies (<100 employees)	148	24 (n = 606)
Medium companies (100-499 employees)	144	42 (n = 345)
Large companies (500+ employees)	50	40 (n = 125)
Total	342	(n = 1,076)

FIGURE 2: TQM COMPANIES ACCORDING TO SECTOR



TQ Adoption According to Size

Overall similar numbers of small and medium companies had adopted a Total Quality approach, however if examined as a proportion of smaller firms surveyed, only one quarter had adopted, com-

pared with 42 per cent of medium-sized companies and 40 per cent of large. This confirmed the expectation that Total Quality is more readily adoptable in medium and large organisations than in small.

Thirty-seven Total Quality companies were partnerships (11 per cent of TQ companies). Only twelve were in partnership with a company based abroad: US (4), UK (2), other EU (3) and other non-EU (3). Almost half the companies (48 per cent) which had partners outside Ireland (25) were included in the Total Quality group of organisations.

TQ Adoption According to Unionisation

There was a higher proportion of Total Quality organisations in which there was unionisation, 191 or 56 per cent of the total (342), compared with 39 per cent which were non-unionised. This suggests that unionisation may enhance rather than inhibit the adoption of Total Quality.

Timing of Total Quality Adoption

Of those organisations which had implemented a Total Quality approach, 24 per cent started the process less than one year before, 18 per cent within 1 to 2 years before, 26 per cent 2-3 years before and 32 per cent in the previous 3 or more years. In 68 per cent of the organisations the effort was internally driven, in only 2 per cent was it exclusively externally driven and in 30 per cent it was both internally and externally driven. Less than half of the organisations had used external consultants to implement the Total Quality approach, (41 per cent in manufacturing companies and 43 per cent in service organisations). Within the service organisations, 53 per cent had appointed a coordinator to implement the Total Quality approach.

Motivation for Adopting a Total Quality Approach

Respondents were asked to rate their motivation(s) for adopting a Total Quality approach based on a rating scale of 1 to 5 point where 1 = High and 5 = Low. The table below sets out the number of responses of 1 and 2 (high level of motivation), for both sectors in seeking to become Total Quality organisations.

MOTIVATION FOR ADOPTING A TOTAL QUALITY APPROACH[4]

	Manufacturing (n = 523)	Services (n = 553)
Quality improvement initiative	191	117
Customer demand	125	117
To stay competitive	182	127
Improve product/service standards	188	141
Improve profitability	154	93
Government/EU driven	9	25
Other reasons	na	8

This table shows that organisations which had adopted Total Quality did so for a number of, often inter-related, reasons. These varied somewhat according to sector. For manufacturing companies, the prime motivators were in promoting a company based improvement initiative (191); to improve standards (188) and to stay competitive. In service organisations improvement of product/service standard was most important, followed by staying competitive. Customer demand and company improvement initiative were also important. The profitability motive, though a factor, was less important, as was the case in manufacturing. These responses suggest that Total Quality is sought and adopted in the context of a more holistic approach to achieve organisational improvement, rather than solely in reaction to demands for higher profits/increasing competition.

Quality Improvement Techniques Used in Organisations

All organisations, including those in which Total Quality had been adopted, were asked what quality improvement techniques they had used. In the questionnaire to manufacturing companies a range of industrial specific techniques were listed. Similarly, the questionnaire to services included techniques which would be deemed more relevant to service type organisations. Respondents were asked to tick which techniques had been introduced "to improve the quality of goods/services supplied".

An array of quality improvement tools were used in 61 per cent of manufacturing companies, compared with 40 per cent of services. Problem solving methods were used in over half the manufacturing

sample (56 per cent). As expected, Statistical Process Control was more relevant in manufacturing processes, and used in 44 per cent of manufacturing companies surveyed, and 23 per cent of service organisations. Just-In-Time had been introduced in one-third of manufacturing companies. Failure Mode and Effect Analysis and Quality Function Deployment were techniques used in 15 per cent and 11 percent of manufacturing plants respectively. Taguchi methods were used in 7 per cent.

QUALITY IMPROVEMENT TECHNIQUES

	Manufacturing (n = 523)		**Services (n = 553)**	
Quality improvement tools	319	61%	221	40%
Statistical Process Control	232	44%	127	23%
Problem solving methods	292	56%	na	na
Failure Mode & Effect Analysis	78	15%	na	na
Quality Function Deployment (QFD)	56	11%	na	na
Just-in-Time (JIT)	170	33%	na	na
Taguchi methods	48	9%	na	na
Random Time Sampling	na	na	92	17%
Learning Curve Analysis	na	na	31	6%
Counting lost customers	na	na	171	31%
Process flowcharts/activity tables	na	na	162	29%
Others	35	7%	28	5%

In service organisations, techniques such as Counting Lost Customers (31 per cent), process flowcharts and/or activity tables (29 per cent) and Random Time Sampling (17 per cent) tended to be used to improve goods/services supplied.

Employee Involvement

In all, 871 of the organisations who responded obtained feedback from their employees, representing (81 per cent of the total). The most common form of employee feedback was from focus groups in manufacturing companies (34 per cent), followed by monitoring of employee complaints, suggestion boxes (23 per cent) and employee

surveys (22 per cent). In service organisations monitoring complaints by employees was the most common (35 per cent), followed closely by focus groups (32 per cent). Employee surveys were more common than in manufacturing (27 per cent) while suggestion boxes were less frequently used to obtain feedback. Some organisations used more than one method to obtain feedback. While manufacturing companies tended to seek feedback to improve their processes or design of products (66 per cent), in manufacturing similar percentages (52 per cent) used feedback for this purpose as those who wished to ascertain employee satisfaction. Use of feedback was less important in both sectors (38 per cent in manufacturing and 43 per cent in services) for development of products and services.

METHODS OF EMPLOYEE FEEDBACK

	Manufacturing (n = 523)		Services (n = 553)	
Employee surveys	114	22%	148	27%
Monitoring employee complaints	149	29%	193	35%
Suggestion boxes	118	23%	88	16%
Focus groups	178	34%	177	32%
Other	79	15%	114	21%

USE OF EMPLOYEE FEEDBACK

	Manufacturing (n = 523)		Services (n = 553)	
Ascertaining employee satisfaction	258	49%	289	52%
Development of products/services	199	38%	238	43%
Process improvement/Design	346	66%	287	52%

Teamwork

Manufacturing companies were more likely to use teams or groups on projects than service organisations, 341 companies or 65 per cent, compared with 315 service organisations accounting for 57 per cent of the total service respondents. Some forms of teamworking were

more commonly used in one sector than the other. Problem-solving groups established to fulfill a specific function were most frequently used in 44 per cent of manufacturing companies, after which functional teams (35 per cent) and quality improvement teams (34 per cent) were next in importance in manufacturing. The table below sets out the utilisation by sector.

TEAMWORK IN ORGANISATIONS

	Manufacturing (n = 523)		Services (n = 553)	
Functional teams	181	35%	173	31%
Design teams	114	22%	109	20%
Problem solving groups	231	44%	198	36%
Cluster groups	17	3%	28	5%
Self-directed work groups	97	19%	66	12%
Quality improvement teams	180	34%	142	26%
Quality circles	27	5%	25	5%

In services, organisations also tended to use problem-solving groups (36%), functional teams (31%), quality improvement teams (26%) and design teams (20%). Cluster groups and quality circles were relatively unimportant in both sectors.

Team Objectives

Respondents were asked to rate the objective of utilising team effort, on a motivational scale where 1 = Most Important and 5 = Least Important. The responses which gave a rating of 1 or 2 on this point scale are set out in the table below:

TEAM OBJECTIVES

	Manufacturing (n = 523)		Services (n = 553)	
To encourage emp. involvement	288	55%	268	49%
To enhance problem solving	317	61%	295	53%
To encourage communication	280	54%	273	49%

The objectives for using teams was primarily geared to the organisations' needs to solve problems, accounting for 61 per cent of companies responding in manufacturing and 53 per cent in services. Similar proportions of organisations in both sectors also viewed teams as fulfilling secondary objectives of encouraging employee involvement and encouraging communication.

Reward Scheme(s)

Service organisations were more likely than those in manufacturing to have reward schemes, 269 service organisations (49 per cent) compared with 213 in manufacturing (41 per cent). The prevailing pattern is to reward individuals (used in 29 per cent of manufacturing and 33 per cent of service companies), followed by plant-wide awards (16 per cent in manufacturing and 15 per cent in services) and team or groups awards (used by 12 per cent of organisations in each sector). The most common form of reward was financial, used in 30 per cent of manufacturing companies and 38 per cent of service organisations. Non-financial rewards were used in very few organisations, 5 per cent in manufacturing and only 2 per cent of services. Some combination of financial and non-financial rewards were used in 10 per cent of organisations in each sector.

LEVEL AND FORM OF REWARDS

	Manufacturing (n = 523)		**Services (n = 553)**	
Level of Reward Scheme(s)				
Plant-wide	85	16%	84	15%
Departmental	26	5%	46	8%
Team/group	61	12%	65	12%
Individual	153	29%	180	33%
Form of Rewards				
Financial	157	30%	209	38%
Non-financial	26	5%	11	2%
Both financial/non-financial	53	10%	57	10%

Benchmarking

A similar proportion of manufacturing and service organisations had used benchmarking 149 manufacturing companies, or 29 per cent, and 156 service organisations, or 28 per cent of the total.

USE OF BENCHMARKING

	Manufacturing (n = 523)		Services (n = 553)	
Purpose of Benchmarking				
To improve performance	132	25%	141	25%
To be more competitive	101	19%	85	15%
Customer focus	na	na	89	16%

One-quarter of respondents in each sector acknowledged that they used benchmarking to improve their performance. Benchmarking in order to be more competitive was more important in manufacturing (19 per cent) than services (15 per cent). The service organisations indicated that it was used to develop a customer focus (16 per cent), a response that was not included in the manufacturing survey questionnaire.

Customer Focus

Some form of customer feedback was obtained by nearly all the manufacturing companies, 493, or 94 per cent, and by 485 service organisations, 88 per cent of the total. The most common form of feedback, and according to Cook (1992) the "traditional means companies adopt to gauge the reactions of customers" particularly in manufacturing companies, was through monitoring of customer complaints (80 per cent), as compared with two-thirds of service organisations. Within manufacturing, sales analysis (43 per cent), monitoring of delivery/service times (42 per cent) and customer surveys (40 per cent) were also important. Less than one-third of manufacturing companies utilised long term customer profiles (31 per cent), market research (28 per cent) or focus groups (8 per cent).

CUSTOMER FEEDBACK MECHANISMS

	Manufacturing (n = 523)		Services (n = 553)	
Form of Customer Feedback)				
Customer surveys	208	40%	277	50%
Monitoring customer complaints	420	80%	366	66%
Sales analysis	227	43%	218	39%
Monitoring delivery/service times	218	42%	109	20%
Market research	145	28%	137	25%
Long-term customer profile	160	31%	136	25%
Focus groups	40	8%	79	14%

Cook (1992) stresses that in the service sector customer feedback is vital if organisations wish not only to attract new customers but also to retain existing customers. Customer surveys were more important than in manufacturing and used in 50 per cent of organisations, followed by sales analysis (39 per cent), market research and long term customer profile (25 per cent). Focus groups were more important in this sector (14 per cent).

A substantial proportion of organisations, 80 per cent in manufacturing and 72 per cent in services, obtained customer feedback on a continuous, ongoing basis. The infrequent and intermittent patterns of feedback were relatively rare in manufacturing (11 per cent obtained feedback annually or less often) and prevailed in 20 per cent of service organisations.

FREQUENCY AND USE OF CUSTOMER FEEDBACK

	Manufacturing (n = 523)		Services (n = 553)	
Frequency of Customer Feedback				
On-going basis	418	80%	400	72%
Every three months	7	1%	20	4%
Three to six months	9	2%	25	5%
Annually	21	4%	75	14%
Less than annually/Infrequently	36	7%	33	6%

	Manufacturing (n = 523)		Services (n = 553)	
Use of Feedback				
Continuous feedback	408	78%	421	76%
To assess customer satisfaction	388	74%	382	69%
To assess organisation's success	215	41%	245	44%
To profile the customer	na	na	119	22%

In both sectors feedback was most often used in the process of continuous improvement (78 per cent in manufacturing and 76 per cent in services), followed by assessing customer satisfaction (74 per cent and 69 per cent respectively). Less than half the organisations (41 per cent in manufacturing and 44 per cent in services) used the feedback to assess their organisation' success.

Evaluation of Suppliers

Relationships with suppliers were more important to manufacturing than service organisations. In all, 300 manufacturing (57 per cent) and 224 service organisations (44 per cent) used some sort of evaluation of their suppliers. In 264 manufacturing companies (51 per cent) this took the form of vendor audits. In services there was a weaker relationship with suppliers and vendor audits were used in 185 (34 per cent) service organisations. Certification was required by 102 service organisation (18 per cent) and other forms of evaluation of their suppliers were used by a further 120 (22 per cent).

Manufacturing companies were also more likely to encourage their suppliers to adopt a Total Quality approach, in 177 companies, representing 34 per cent of manufacturing respondents. In services the number was 133 or 24 per cent of service organisations.

Conclusion

The high response rate to the two postal surveys provides a timely opportunity to assess the substantial and growing level of awareness about quality among Irish manufacturing and service organisations in the 1990s. The results show that the introduction of quality improvements is occurring in the context of restructuring and at a time when employment is rising in many companies. Responsibility for the quality function is diffusing beyond the obvious personnel, such as CEO

and Quality Manager, to encompass "all staff" in at least half the service organisations.

Nearly half the organisations surveyed had sought some form of certification to a quality standard, the most important being ISO 9000 and respondents displayed both realistic and pragmatic views on the motivation for seeking, and impact of, certification for the organisation. In a large proportion of companies, certification was sought as a driver of a company quality improvement initiative. The most frequent form of impact on the organisation was not in relation to costs or competitiveness but in relation to better quality products and/or services.

Nearly one-third of all responding organisations had adopted a Total Quality approach and the level of adoption was higher in manufacturing, in medium and large sized companies and where full unionisation existed among company personnel. Total Quality adoption in manufacturing was highest in electronics and pharmaceuticals and lowest in clothing and footwear. Within service organisations the level was more consistent across sectors, at between one-fifth and one quarter of those organisations surveyed. The motives for adopting Total Quality were not confined to quality and standards of product/service, but extended to customer demand, profitability and staying competitive.

Employee involvement is becoming an intrinsic part of the way organisations are functioning, primarily for the benefits to be accrued from employees' inputs to process improvement and design. Hence the use of teamworking to contribute to problem-solving and quality improvement. Reward systems were essentially aimed at the individual and the form of rewards was financial in most organisations.

Customer consciousness was very high in the companies surveyed, with over 90 per cent seeking feedback and in over three-quarters of the companies the feedback was on-going, aimed at continuously improving and assessing levels of customer satisfaction. However, monitoring customer complaints remains a key mechanism of customer feedback, but is being supplemented or replaced by more proactive means such as sales analysis, monitoring of delivery/sales times and customer surveys.

Along with employee and customer relations, there were indications that companies sought to provide feedback to suppliers and to encourage them to adopt Total Quality concepts. Vendor audits were common in half the manufacturing and one-third of services companies.

Endnotes:

[1] The author wishes to acknowledge the invaluable assistance of Gareth Flannery and Helen Ennis, both undergraduate students in Management Science and Information Systems Studies at Trinity College Dublin, without whom the surveys of manufacturing and service companies could not have been conducted; Karsten Koenig, University of Dresden, Germany, who contributed so much to the subsequent data preparation and analysis, in addition to commenting on earlier drafts; Chief Executive of FORÁS, John Travers, and his staff Denis Slater, Claire Breen and Brendan McDonagh, for use of the FORÁS database and assistance in selection of the industrial sample.

[2] Some companies in the sample had expanded their number of employees, hence some companies selected as "medium" sized employed more than 500 employees at the time of the survey. Similarly a number of companies identified as "small" had expanded into the medium category.

[3] Responses to this question were sought only from those who had stated that they were aware of Total Quality. However some additional responses were made by 33 other respondents and these were included in the analysis.

[4] This question was answered by some organisations that had not adopted a Total Quality approach.

References:

Bradley, M. (1994), "Starting Total Quality Management from ISO 9000", *The TQM Magazine*, Vol. 6, No. 1, pp. 50-54.

Ciampa, D. (1992), *Total Quality: A User's Guide for Implementation*, Addison-Wesley, Reading Mass.

Collard, R. (1993), *Total Quality: Success through People*, Institute of Personnel Management, London.

Cook, S. (1992), *Customer Care: Implementing Total Quality in Today's Service-Driven Organisation*, London: Kogan Page.

Dale, B.G. (1994), *Total Quality Management*, Prentice Hall, Hertfordshire.

Davison, J. and Grieves, J. (1996), "Why should local government show an interest in service quality?", *The TQM Magazine*, Vol. 89 No. 5, pp.32-38.

Ghosh, B.C. and Hua, W.H. (1996), "TQM in Practice: A Survey of Singapore's Manaufacturing Companies on their TQM Practices and Objectives", *The TQM Magazine*, Vol. 8 No. 2, pp. 52-54.

Goh, P.L. and Ridgway, K. (1994), "The Implementation of Total Quality Management in small and Medium -sized Manufacturing Companies", *The TQM Magazine*, Vol. 6 No. 2, pp. 54-60.

Imai, Masaaki, (1986), *Kaizen, The Key to Japan's Competitive Success*, Random House, New York.

Lewis, B. (1994), "Managing Service Quality", in Dale, B. (ed.) *Managing Quality*, Prentice-Hall, London, pp. 233-250.

Oakland, J. (1991), *Total Quality Management*, Butterworth-Heinemann, Oxford.

Quazi, H., and Padibjo, S. (1997), "ISO Certification — a Singapore Experience", *The TQM Magazine*, Vol. 9 No. 5, p. 364-371.

Stuart, M., Mullins, E. and Drew, E. (1996) "Statistical Quality Control and Improvement", European Journal of Operational Research,Vol. 88, pp.203-214.

Sullivan-Taylor, B. and Wilson, M. (1996), " TQM Implementationin New Zealand Service Organisations", *The TQM Magazine*, Vol. 8 No. 5, pp. 56-64.

Taylor, A. (1995), "Total Quality Management and the Need for Organisational Self-Assessment: Some Empirical Evidence", *Total Quality Management*, Vol. 6, No. 1, pp. 3-12.

Whyte, J. and Witcher B. (1992), *The Adoption of Total Quality Management in Northern England: An Interim Report*, Durham University Business School Occasional Paper.

Williams, N. (1997), "ISO 9000 as a Route to TQM in Small to Medium Sized Enterprises: Snake or Ladder?", *The TQM Magazine*, Vol. 9 No. 1, p. 8-13.

Witcher, B. (1993), *The Adoption of Total Quality Management in Scotland*, Centre for Quality and Organisation Change, Durham University Business School.

Zairi, M., Letza, S.R. and Oakland, J.S. (1994), "Does TQM Impact on Bottom-Line Results?", *The TQM Magazine*, Vol. 6 No. 1, p. 38-43.