

## A GUIDE TO QC LANGUAGE

by [John Loftus](#) (originally published from February 1993-April 1995 in the J-Net Bulletin)

The terminology of the QC (quality control) field is extensive and ever-developing. Moreover, it is far from standardized, and different authors (both Japanese and English) often use the same term in different senses. There are as many definitions of the word 'quality' as there are people who write about it! An author may even use the same term differently within the same piece of writing, and the translator has to look out for these nuances.

An interesting feature of QC language is the active cross-fertilization that goes on between Japanese and English. QC was originally introduced into Japanese industry from the US shortly after World War II (although Japanese statisticians had been studying British SQC (statistical quality control) techniques since before the war), so many Japanese QC terms are translations of English ones. However, the boot is now on the other foot, with Western industry avidly studying Japanese QC methods, so some QC terms invented in Japan have been translated into English or are even used untranslated (see Random Musings (2) in this issue). Occasionally, I have had to coin a neologism myself, when I have been unable to find an existing equivalent. It will be interesting to see whether any of these catch on and become part of the QC lexicon.

In this and subsequent issues, I would like to discuss some of the terms that crop up frequently in the QC field, and how best to translate them.

Available J-E QC dictionaries are severely limited, so I spend a lot of time gleaning terms from English books and articles. Numerous books have been translated from the Japanese, and it is informative (although time-consuming) to compare the translations with the Japanese originals. However, different translators render the same Japanese term in different ways (for example, I have seen the term 初期流動管理 variously translated as 'initial flow control', 'early management', 'startup management', and 'commissioning control'). Struggling to achieve terminological consistency, I often know how Brian Howell's ヒラタココヌストモドキ (see Appendix) feel!

### 品質管理

Moving on to specific terms, let us start with the most basic one. 品質管理 was the original Japanese translation of 'quality control' and was fine as long as QC was mainly a set of statistical checking techniques employed by inspectors. Now, however, the concern with quality has spread out from quality assurance departments to permeate entire company organizations, and many world-class firms no longer have an inspection function because 'quality is everybody's business' and is built into the product or service at every stage of the production process. Along with this transformation of industrial practices, the term 品質管理 began to be replaced by the more all-embracing one 全社の品質管理 (品質管理 being confined to its narrower usage).

Similarly, in the West, 'quality control' (sometimes called 'little Q') developed into 'quality management' ('big Q'), 'total quality control' (TQC), 'companywide quality control' (CWQC) and 'groupwide quality control' (GWQC).

Japanese writers use these abbreviations (particularly TQC), but most Western writers now use the term 'total quality management' (TQM). The latest vogue is to drop the 'management' (presumably because it suggests that quality is a purely management responsibility instead of everyone's job) and use 'total quality' (TQ). I have not seen the abbreviation TQM used much in Japanese writings, although there is at least one book which advocates abandoning the term TQC in favour of TQM.

However, some authors have started to use 品質経営 as the equivalent of 'quality management'. This is very helpful, as it saves the poor translator from having to work out whether to translate 品質管理 as 'quality control' or 'quality management' each time it occurs.

To sum up, here are my suggested translations of these basic terms:

- 品質管理 = 'quality control' or 'quality management'
- 全社の品質管理 = 'total quality management' or 'total quality'
- T Q C = 'TQM' or 'TQ'
- 品質経営 = quality management

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The second part of your friendly guide to QC language discusses four of the basic concepts of Japanese-style QC. All the terms below are now routinely used untranslated in Western quality management literature.

## 改善

The basis of Japanese-style QC, 改善 is such an important philosophy that it has had a whole book written about it ('Kaizen - The Key to Japan's Competitive Success', by Masaaki Imai, published in 1986 by Random House). It is more than just 'improvement' - it is relentless, perpetual improvement involving everyone from senior management to front-line workers. Western organisations have traditionally neglected it, allowing standards to slip gradually and then making sudden innovative leaps (like me letting my study deteriorate into a shambles and then having a blitz-type clearout). Japanese companies make innovations too, but they also keep on raising their standards through incessant minor improvements. Common translations for 改善 are 'continuous incremental improvement', 'ongoing improvement', 'ceaseless improvement' and 'never-ending improvement'.

## 看板

A 看板 is a communication tool used in the JIT (just-in-time) manufacturing system. It may take the form of a card attached to a box of parts. When all the parts in the box have been used in a

particular process, the box and 看板 are returned to the previous process to indicate that more parts are needed. The idea is to minimise waste by having each process produce exactly what the next process needs, exactly when it is needed, instead of churning out parts to accumulate in great mounds all over the production floor. Although the word "kanban" can be translated by terms such as 'signboard', 'label', 'card' or 'visible record', it is frequently left untranslated.

## ポカ避け

"Poka-yoke" are devices for preventing workers from making mistakes. There are an infinite variety of these, including colour-coding (solder the red wire onto the red terminal), special procedures (count the parts out into a dish before fitting them), shape-coding (provide discs with square holes to mount on square shafts), detectors (sound a warning if the package is the wrong weight) and so on. These used to be called バカ避け (foolproofing devices), but some workers objected that this implied they were fools, so it was changed to ポカ避け. I usually translate this as 'error-proofing device', but some Western QC specialists use the term untranslated. Unfortunately, at least one that I know of pronounces it like the English words 'poker' and 'yoke'!

## 5 S

The '5 Ss' (整理、整頓、清掃、清潔、躰【しつけ】) are translated in a great variety of ways, not always conveying their essential meanings. The general English term for "5S" is '(industrial) housekeeping'. The five Ss are sometimes joined by a sixth, standing for しっかりやる. The meanings of each are discussed below.

### 整理

Taking stock of equipment, materials, information and so on, identifying what you need, and getting rid of everything else.

### 整頓

Putting what is left in order so you know where everything is and can lay your hands on anything without delay.

### 清掃

Although this means making everything squeaky-clean, it is not an end in itself. The activity of cleaning should be used as an opportunity for finding faults. Removing every last trace of dirt not only makes defects (such as a hairline crack) easier to spot, but also forces a person to pay much closer attention to the equipment than normal, as well as encouraging pride and a sense of ownership.

### 清潔

This has both material and spiritual dimensions; it means being clean in mind as well as body. One of the best translations I have seen for it is 'cleanliness and honesty in everything'.

### 躰(しつけ)

Although this means 'discipline', it does not mean blindly following orders. It means self-discipline, following the correct procedures, observing the standards and not being sloppy or taking short-cuts.

Trying to encapsulate the essence of each S as concisely as possible, I have arrived at the following translations: (整理) 'sorting out', (整頓) 'arranging efficiently', (清掃) 'checking through cleaning', (清潔) 'cleanliness and honesty', (躰) 'self-discipline' and (しっかりやる) 'doing all these things properly'. However, 改善 applies to translation too, and I expect to keep on improving these in the future.

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The previous article of this series explained the 5 Ss. This article deals with a further six of the arcane alphanumeric abbreviations that pepper Japanese manufacturing management texts.

## Q7

This is an abbreviation for QC七つ道具, the original Seven QC Tools (also known as the conventional seven QC tools, the traditional seven QC tools, the seven QC problem-solving tools or the seven statistical QC tools).

These techniques, named after the seven weapons of the Kamakura-era warrior-priest Benkei, are used to collect and analyze numerical data and solve quality problems. They consist of:

- パレト図 (Pareto diagrams)
- 特性要因図 (cause-and-effect diagrams, Ishikawa diagrams or fishbone diagrams)
- チェックシート (checksheets)
- ヒストグラム (histograms)
- グラフ (graphs)
- 散布図 (scatter diagrams)
- 管理図 (control charts)

There is no fixed order to the items in this list. Some QC experts (including Dr. Kaoru Ishikawa, the 'father of Japanese quality control') lump graphs and control charts together and add 層別 (stratification).

## N7

This is an abbreviation for 新QC七つ道具, the Seven New QC Tools (also known as the Seven Management Tools or the Seven Planning Tools), used for collecting and organizing verbal data and presenting it diagrammatically, sorting out complex situations in order to identify problems and put them into solvable form, and planning courses of action.

They consist of:

- 親和図 (affinity diagrams)

- 関連図 (relations diagrams or interrelationship digraphs)
- 系統図 (tree diagrams, systematic diagrams or dendrograms)
- マトリックス図 (matrix diagrams)
- マトリックスデータ分析 (matrix data analysis)
- アロー図 (arrow diagrams)
- P D P C (process decision program charts)

### 3△

The 'three Mus' stand for 無駄, 斑(むら) and 無理 (not necessarily in that order). 無駄 means using excessive resources to achieve an objective, 無理 means trying to achieve an objective with inadequate resources, and 斑 describes a state of non-uniformity in which 無駄 and 無理 are concealed. I have seen 無駄 translated as 'waste' or 'excess', 斑 as 'inconsistency' or 'unevenness', and 無理 as 'stress', 'strain' or 'unreasonableness'. I usually translate them as 'WUS (waste, unevenness and strain)'. Who knows, perhaps the cry, "Let's eliminate WUS!" will one day resound through offices and factories around the world.

### 4 M

As you probably know, the '4 Ms' stand for men, machines, materials and methods. They are sometimes joined by a further two (money and measurement) and/or an I (information). However, the abbreviation is now considered sexist (at least in America), so it has to be spelled out as 'people (or men/women), machines, materials and methods'. If political correctness ever catches on in Japanese industrial circles, presumably it will become "1P3M".

### 5W1H

This is the Japanese industrialists' version of Rudyard Kipling's 'six honest serving-men'. It stands for who, what, why, when, where and how. The "5W1H" technique consists of methodically asking questions to identify the root cause of a problem. A related technique is ノーホアイ分析 (know-why analysis), in which the question "Why?" is asked repeatedly (at least five times) for the same purpose.

### 3現主義

This means hands-on problem-solving where people visit the location of the trouble (現場), look at the actual objects there (現物), and observe what is really happening (現象), instead of sitting at their desks theorizing. I have translated it as "giving importance to the 'three actualities' (actual spot, actual object and actual phenomenon)". 現場主義 (the 'hands-on approach' or 'the shop-floor approach') means essentially the same. An extension of 3現主義 is 5ゲン主義, which includes 原則 and 原理. Fred Uleman of JAT has coined the term 'RESPA management' for this, where R stands for reality, E for evidence, S for site, P for principles and A for axioms.

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This issue's article includes some terms particular to QC and some more general ones that crop up frequently in QC literature. If you have any comments on my translations or suggestions for terms to be included in future articles, please fax me on 01803 762442. Your input would be much appreciated (I'd like to learn something from you, too). So far, the only feedback I've had has been an encouraging letter from a translator in Australia!

## ポカミス

Readers of A Guide to QC Language (2) will know that ポカ避け means 'error-proofing' (or 'mistake-proofing'). ポカミス are, as you have probably guessed, what error-proofing tries to prevent; careless errors or inadvertent mistakes. I hope readers will forgive any that occur in this series of articles. I imagine that both terms derive from ポカント (absentmindedly, vacantly). A ソフト・ポカ避け ("soft error-proofing device") is an intangible means of preventing errors; for example, a software program that serves up diary reminders at the appropriate times.

## 悪さ加減

I find the derivation of this popular QC term rather hard to grasp; 悪さ means 'badness', but 加減 has a range of meanings, several of which could fit in the context: 'degree or extent', 'state or condition', or 'tendency, hint of'. 悪さ加減 could therefore literally mean 'degree of badness', 'state of badness' or 'tendency towards badness'. In QC-speak, it refers to something that is not yet a problem but is not quite right and could develop into a problem if left untended. Workers are encouraged to be on the alert for 悪さ加減 in the workplace and seek ways to eliminate them before trouble develops. Since I do not know of any pat translation for 悪さ加減, I generally explain what they are and then refer to them as 'potential problems', 'minor deficiencies' or 'subtle abnormalities'.

## 徹底する

This is not strictly a QC term, but I am including it here because it occurs so often in QC writings. It is one of those words that do not seem to have an exact English equivalent, and it always makes me stop and think about how best to translate it. In a sentence such as QC七つ道具を徹底する, for example, it means making sure that everyone in the company is thoroughly conversant with the Seven QC Tools and uses them regularly and effectively. Here are some of the ways I have handled it over the years; I would be grateful for suggestions on other ways of translating it.

### 徹底

universal recognition, all-out application

### 徹底する

inculcate, instil, thoroughly establish, make second nature, use extensively

(Xが)徹底している

everybody is fully conversant with X

徹底追求

dogged pursuit

徹底改善

exhaustive improvement

徹底した

uncompromising, meticulous, scrupulous, thoroughgoing

徹底して

assiduously

徹底的な

comprehensive

徹底的に

mercilessly, painstakingly

### 3現場主義

3現場主義 is a close cousin of 3現主義, and it is easy to confuse the two. However, where 3現主義 stands for 現場、現物、現象, 3現場主義 stands for 現場へ出て、現場で現実を見て、現場で事実を追求すること. I translate it as the 'Triple W' approach (go to the Workplace, observe what is actually happening in the Workplace, and identify the facts in the Workplace).

### 3S / ECRS

Not to be confused with 5S, 3S usually stands for Simplify, Standardize, Specialize. ECRS, a related abbreviation, stands for Eliminate, Combine, Rearrange, Simplify.

### 3K

This again is not strictly a QC term but often crops up in QC literature. It has been discussed before in the JAT Bulletin, but I have come across the following three variations, which I give here for interest together with my translations. All three refer to the type of work that young Japanese workers are no longer willing to undertake, and who can blame them? At least translation is usually only 辛い (although, in 3K, 辛い means physically demanding rather than mentally demanding).

- 3K: 辛い、汚い、危険 (hard, dirty and dangerous)
- 3K: 辛い、汚い、嫌われる (hard, dirty and disliked)
- 3K: 辛い、汚い、臭い (hard, dirty and smelly)

### KKD

This stands for 経験、感、度胸. It refers to the (undesirable) management approach of taking decisions based on limited personal experience, gut feelings and a leap of faith rather than on careful, objective checking of the facts through 事実による管理 ("management by fact", or "fact-based management"). I usually translate it as "the traditional hit-or-miss management approach based on experience, intuition and daring".

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This issue's Guide to QC Language starts with one of the more linguistically interesting abbreviations found in QC literature, continues with a mixed bag of other terms, and ends with a lengthier discussion of one of the most common terms of QC-speak.

## MMK

儲かって儲かって困る品質管理 - the type of quality management that makes you more money than you know what to do with. Its antonym is FFK, which can stand for (お客さんに)振られて振られて困る品質管理 or 不良で不良で困る品質管理. Kaoru Ishikawa (as readers of this series will know by now, the late lamented 'father of Japanese quality control') was fond of the term MMK, which was apparently wartime naval slang for handsome sailors so popular with the girls that they had to fight them off (持てて持てて困る). I usually render MMK as 'super-profitable QC'.

## JUSE

This is the standard abbreviation for the English title of 日本科学技術連盟 (日科技連), one of the leading organizations promoting quality management in Japan. Contrary to expectation, JUSE stands for Union of Japanese Scientists and Engineers, rather than Japanese Union of Scientists and Engineers. How this anomaly came about, I do not know, but it still confuses many Western writers on QC, who take it into their heads to correct what they naturally regard as a mistake in the word order.

## TPM/TP

TPM stands for Total Productive Maintenance, or 全員参加の生産保全, a participative approach to equipment maintenance advocated by 日本プラントメンテナンス協会 (the Japan Institute of Plant Maintenance, or JIPM). Do not confuse it with Total Productivity Management, or 総合生産性マネジメント, a relatively new, all-embracing management system espoused by 日本能率協会 (the Japan Management Association, or JMA). To distinguish it from TPM, Total Productivity Management is usually abbreviated to TP Management or just TP.

## KYT

危険予知トレーニング, the type of training designed to make people notice and avoid dangerous situations and unsafe working practices. The best translation I have seen for this is SAT (safety

awareness training), which substitutes an equally concise abbreviation while retaining the meaning of the original.

## パープロ

I am usually not too bad at guessing katakana terms, especially when they appear in context, but this one had me flummoxed. On enquiring of the author, I was informed that, in the particular context, it meant 'sales per person', or a company's turnover divided by the number of its employees, and he thought that it was an abbreviation for 'per-person profitability'. Later, I came across it used in a more general sense to mean 'per-capita productivity'.

## 齒止め

This standard QC term refers to the 'ratchet effect', whereby a situation is improved and the new status is then standardized to lock the improvement into place and prevent backsliding. I usually translate it in exactly those terms, as 'locking improvements into place', 'standardizing to prevent backsliding', or occasionally as 'applying the brakes'.

## 活性化

As everyone knows, 活性化する means to stir things up, get things moving, breathe life into an activity, kick people's asses into gear, etc., etc. The problem is, it crops up over and over in QC writings, and it's hard to think up a new translation each time (essential when it occurs three times in the same sentence!). Here are some suggestions: vitalize, energize, activate, animate, enliven, invigorate, galvanize, fire up, bring to life, inject life into, put some sparkle into, give a shot in the arm to, imbue with energy and enthusiasm, keep bubbling, keep on the boil, put some pep into.

## 企業体質

According to 広辞苑, the word 体質 refers either in a narrow sense to a person's physical constitution or, more broadly, to 'the totality of an individual's physical and mental disposition'. It is commonly applied in a metaphorical sense to business organisations, particularly in the phrase 企業体質改善. Unfortunately, however, the literal translation 'corporate constitution' conveys little and invites confusion with one of the other senses of 'constitution' i.e. 'the body of fundamental principles or established precedents under which a State or other organization is acknowledged to be governed' (Concise Oxford Dictionary).

One of the books I have translated includes a fairly detailed discussion of the concept. According to the authors, a corporation's constitution encompasses every facet of a firm's existence at any time and consists of three principal elements: its corporate structure, its available resources and its organizational climate. Each of these principal elements consists of a number of sub-elements, as follows:

## Corporate structure

- Business mix (product line), geographical market coverage
- Process span, plant composition and location
- Sales force and distribution network
- Capital structure, business tie-ups
- Organizational structure and management system

## Available resources

- Human resources (numbers, types, abilities)
- Facilities, technologies, financing capacity (share price, relationships with financial institutions, etc.)
- Other assets (real estate, securities, etc.)
- Company databases, outside information sources
- Corporate (brand) image

## Organizational climate

- Personal relationships among top executives
- Communication among different hierarchical levels
- Interdepartmental cooperation
- Employee morale and spirit of challenge
- Labor relations

Probably, every author has his or her own idea of what 企業體質 means. So, how should we translate it when it appears baldly, without any explanation? I used to render it as 'corporate health and character', but then discovered that 'internal environment' is a pretty good equivalent. Another translation I have used is 'overall management and culture'. However, I now tend to use the straight literal translation, with an explanation to the effect that it means 'a company's entire internal environment, including its management structure, available resources and organizational climate'.

Eventually, I hope that the term 'corporate constitution' will catch on in Western management circles and I will no longer have to explain it every time.