QUALITY MANAGEMENT SYSTEMS FOR EDUCATION AND TRAINING:
A RESEARCH INTO THE 10 MAJOR WORLD CLASS SYSTEMS WITH A SUBSEQUENT QMS TOOLKIT FOR QMS INSTALLATION.

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1. INTRODUCTION

During the Winter of 2000 the company Reevell & Scholtz Holdings (Pty) Ltd was requested to conduct a research on the various Quality Systems that are available around the world. This became necessary because of the intense debate that was going on at that time amongst the Education & Training fraternity. Newly passed South African legislation required all Education & Training providers to install a Quality Management System prior to obtaining accreditation from the various newly established statutory bodies established for the purpose of regulating the quality of South African education and training.

The research was conducted for the WHOLESALE & RETAIL SECTOR EDUCATION & TRAINING AUTHORITY (W&RSETA) and was completed in the spring of 2000. This research is to date the only empirical research done on the various systems available in the world and has since been adopted and referred to by a number of organisations in South Africa. The South African Qualifications Authority (SAQA) is also on record that they have utilized the outcomes of this research to provide direction to their stakeholders.

The research covered no less than 10 of the major Quality Systems in the world and was done with the specific objective in mind to ascertain its suitability as a quality system for the education and training providers of South Africa. From the research findings very valuable information was obtained which was used to construct the Reevell & Scholtz Holdings QMS Installation Toolkit, a product which has proved its worth in a market that was desperately seeking alternative ways for Quality Systems installation other than the conventional consultant installation which proved to be too costly for providers to meet.

Herewith follows a description of the research, its findings and the innovative product that has emerged to revolutionise the installation of Quality Systems in the world.

1.1. LEGISLATIVE BACKGROUND

The new legislation on education and training is explicit in its reference to Quality and is very clear on “what” needs to be done. There are no less than 7 different Acts & Regulations that regulate the education and training in South Africa, and they all mention the importance of quality assurance in education & training.

The law requires that certain statutory bodies and all providers of education and training have a quality management system installed before considered for accreditation status. For the...
first time in the history of South Africa the concept of quality in education and training has been legislated with the installation of a quality assurance/management systems enforceable by law. During the pre-1994 years, quality in education occurred incidentally (or in most of the cases coincidentally) without any policy framework in place. The “policing mechanisms” of the past served largely to entrench a political educational ideology rather than to ensure that the educational & training systems was adequate to secure the economic future of a growing South Africa.

1.2. HEXAGONAL MODEL

The hexagonal model for quality within the Education and Training terrain in South Africa describes with one diagram (see figure 1) the main focus areas, as well as the major structures/bodies, that should be considered and studied to obtain some fundamental understanding of the “quality-within-education and training-setup”. Although standing autonomous, these structures and bodies are inextricably part of each other in serving the aims and objectives of the National Qualifications Framework. A full understanding of their roles and responsibilities is necessary to be able to manoeuvre inside the education & training macro environment it creates.

Figure 1: The Hexagonal Model of Quality in Education and Training

The National Education & Training quality system consists of a dynamic interrelationship between the major quality activities on the one hand and the major quality monitoring structures on the other hand. The major quality activities are:
Assessment;
Standards Setting;
Control and Monitoring.

The major quality monitoring structures are:

- ETQAs & SETAs;
- NSBs & SGBs;
- Providers.

1.3. QUALITY BASIC CONCEPTS

As a means of capacity building the research had to touch on the basic concepts of quality in order to create the basic understanding that is necessary to understand Quality in context. The first concept that serves as a universal absolute is the fact that “all work is a process”.

a) All Work is a Process

Understanding the work we do, as a process with inputs, outputs, customers and suppliers is a fundamental concept of quality improvement.
b) Quality Defined

I. Quality is conformance to requirements:

Quality is defined as conformance to the requirements set by the customer. Terms such as goodness, excellence, beautiful, exclusive are subjective and vague. When quality is defined as conformance to requirements subjectivity disappears. Any product, service or process that conforms to its requirements is a quality product, service or process. If requirements are not met, nonconformance results. The sources of and changes to requirements are varied where the education & training field have the requirements from the government (legislation) and the requirements from the customers/clients.

In the case of Education and Training where basic quality becomes a given (through the compliance to the Acts), quality as a competitive edge necessitates a new definition for quality. In the case where quality is a given, as per the Acts & Regulations, one should define quality as “meeting or exceeding the expectations of the customer”. “Exceeding the expectations of the customer,” means giving the customer more value at the same price. The customer should get more than he/she bargained for – this ensures satisfaction of the customer and a reason for the customer to support you again in the future.

II. The Performance Standard of Quality:

The performance standard of quality must be Zero Defects not “that’s close enough”. “That’s close enough,” says we will be satisfied with meeting the requirements only some of the time. A Zero Defects performance standard means that we will be satisfied only when we meet all the requirements for our work processes each and every time.

III. The System of Quality:

The system for causing quality is prevention and not appraisal. Detection that sorts badly from good at the end of a process does not promote improvement. Prevention occurs in the design of a process. It involves communicating, planning, proofing and working to eliminate opportunities for non-conformances from the start. Causing quality through prevention requires resource allocations so that work is done right, and resources are not squandered on finding and fixing problems.

IV. The Measurement of Quality:

The measurement of quality is the price of nonconformance, not indexes. Measuring quality as good or bad, up or down, better this year than last, or higher than the industry standard fails to give us a picture of whether or not quality is improving. Measuring quality is calculating the price of waste – wasted time, effort, material – produces a monetary figure that can be used to direct efforts to measure and improve the improvement.

c) Evolution of Quality

Organizations typically go through a number of phases or stages in their process of quality improvement. Figure 2.2 shows one such representation of this development through the phases of inspection, quality control, quality assurance and ultimately total quality
management. Quality Control embraces inspection, Quality Assurance embraces Quality Control, and likewise, TQM embraces Quality Assurance. Consider figure 1.3.2.

**Figure 1.3.2**
The Four Levels in the Evolution of Quality Management

- Continuous improvement
- Empowering people
- Caring for people
- Involvement
- Compliance to specification
- Allocating blame

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d) Detection and Firefighting Environment

Organizations whose approach to quality within education and training is merely inspection and/or assessments will be operating in a detection-type of environment (i.e. finding and fixing mistakes); at one time this was thought to be the only way to ensure quality. The same would also be true for those organizations that follow a quality control approach where some development from the mere basic inspection activity would have taken place.

In a detection or firefighting environment, the emphasis is on the delivered education & training (product) and the downstream processes. Considerable effort will be spent on inspecting, checking, screening and testing the product after production of the education and
training, and providing reactive “quick fixes” in a bid to ensure that the education and training delivered (product) conforms to the requirements of the legislation. The policing of the work by inspectors would probably be hurtful to an individual’s quality pride.

This approach was mainly followed in the pre-outcomes based education & training era where learners were sorted and graded, reworked, downgraded and in most cases left with their inferior education to fend for themselves in an environment that developed faster that the education and training technology available and used. While a detection-type system may prevent nonconforming product and practices from being operated, it does not stop them from being made. Further, a nonconforming product must be made before the process can be adjusted and this is inherently inefficient in that it creates waste in all its various forms.

It should also not be forgotten that an environment in which the emphasis is on making good rather than preventing the nonconformance is not ideal for engendering team spirit, cooperation and a good climate for work. The focus tends to be on switching the blame to others, making oneself “fireproof”, not being prepared to accept responsibility, and taking disciplinary action against those who make mistakes.

The detection-type of approach also encourages the view some hold that achieving quality is the responsibility solely of the quality control or quality assurance departments.

e) Prevention-based systems

Finding and solving problems after the event is not an effective way of eliminating their root causes. A lasting and continuous improvement in quality can be achieved only by directing organizational efforts towards preventing problems occurring at source. This concept leads to the next stage of development: quality assurance. Quality Assurance is a prevention-based system, which improves product and service quality, and increases productivity by placing the emphasis on product and process design and process control. By concentrating on source activities, it prevents the emergence of nonconforming products or services. This is a more creative approach than detection: there is a clear change of emphasis from the downstream to the upstream processes.

Quality is created in the design stage (product and services) and not in the control stage: the majority of quality-related problems are caused by poor or unsuitable designs. In the prevention approach, there is recognition of the process as defined by its input of people, machines, materials, method, management, and environment.

f) Rationale of Quality in Education and Training

It is increasingly clear that all those who use the services of providers of education & training, must have confidence that the quality of provision and standards of assessment are subject to processes, which can demonstrate fairness and objectivity. With the renewal of the South African society as an imperative and education and training at the forefront of such renewal, it stands to reason that the quality of the products emerging from such education & training will support the renewal process. To become a successful nation it would be fair to expect that the citizens produced by such an education and training system will be able to
serve the nation economically and socially. Systems therefore need to be put in place that will ensure that these kinds of citizens are produced by the education & training provided.

An UNESCO handout (1997:2) entitled *Monitoring and Evaluating the Quality of Education* (quoted below), clearly illustrates the necessity for putting into place a framework to assure quality education & training provision. It states that:

> “Education in most countries of the world is increasingly seen as providing a major contribution to national economic (and human) development. This trend, coupled with the enormous public expenditure that are devoted to education, has precipitated demands by governments and the public for higher levels of scrutiny and accountability concerning the quality of education and training. Such demands can only be managed by educational planners if they are able to gather and interpret valid evidence concerning student educational outcomes and to compare these with the learning goals of the education system in which the learners are situated”

It is therefore essential that monitoring and evaluation mechanisms be put into place to ensure that all South Africans receive education and training of quality.

g) Inspection, Test & Measurement

Inspection and test, within the education and training context, would typically include measurement of an output and comparison to specified requirements to determine conformity. The tendency will be to use the term assessment when referring to test and/or inspection but should be refrained from as inspection and test simply refers to that measurement activity that is done routinely to collect data that could highlight the deviation from the standard of a process or collection of processes. A checklist to verify that all the equipment needed to conduct a training course will be a good example of a test. The quality plan will have the test and inspection intervals identified with a clear indication of what the procedure would be if any nonconformance were detected.

h) Quality Control

Quality control refers to a collection of tests and inspections that would contribute to providing a measure of control on activities that have a direct or indirect influence on the quality of the output to the client. Usually quality control within an education and training context refers to the test performed on the actual delivery of the education and training in an after the fact fashion.

i) Quality Assurance: What is Quality Assurance?

Quality Assurance refers to the monitoring and evaluation of the performance of the various levels of the education and training system at the various levels of its operation to achieve the 1) specific goals at each level and 2) the overall objectives of the plan. Quality assurance represents the planned and systematic actions necessary to provide confidence that the education provided is meeting expectations and relevant to the needs of South Africans.
An effective quality assurance system requires reliable and comprehensive data collection mechanisms from and about all levels of the system. To make quality assurance a reality throughout the E&T system, it is vital that a culture of accountability is cultivated and entrenched. This culture needs to be sustained through the institutions of on-going monitoring and evaluation mechanisms that focus in a holistic way on education and training provision, processes and outcomes.

j) Quality Management

Quality management refers to the actions, processes and structures necessary to ensure that delivery of education and training is of the highest quality that it can be. As a function, quality management is seen as the responsibility of those in operational or management roles throughout the system, whether the “system” is considered as a provider, an ETQA or an organization. The attainment of quality requires the commitment of the organization, while the responsibility of quality management belongs to senior management at each level.

The aim of quality management practices in education and training is to produce outcomes that not only meet the needs of learners and other stakeholders but also are of educational merit i.e. meet nationally determined standards and are comparable to international standards. Key elements in quality management are strategic planning, resource allocation, coordinating delivery of services and (internal) monitoring and evaluation.

2. STATUTORY BODIES’ REQUIREMENTS

2.1 THE SIX DIMENSIONS OF QUALITY IN THE SKILLS DEVELOPMENT AND SAQA ENVIRONMENT

The SAQA Act, Regulations and Guidelines are clear about the Quality Assurance that has to take place to ensure that Quality Education and Training is delivered. From the literature available the following Quality Assurance activities have to be pursued:

QA requirements between SAQA and the SETAs;
QA requirements on the activities of the SETAs;
QA requirements that the SETAs have of its member organizations;
QA requirements that the SETAs have of its constituent providers.
THE SIX DIMENSIONS OF QUALITY IN THE EDUCATION & TRAINING ENVIRONMENT

a) DIMENSION 1:

The SAQA Act places an obligation on SAQA to install and manage their own internal quality system. The nature and performance of this system will obviously have a great influence on the quality systems that will be pursued by the stakeholders in the education and training environment.

b) DIMENSION 2:

There is some interaction that will take place between SAQA and its various ETQAs, which will be reflected in the requirements of SAQA from ETQAs. It is these requirements that will permeate down to training providers and form the pressure that training providers would have to handle.

c) DIMENSION 3:

The SAQA Act and regulations are very clear on the requirement for any ETQA/SETA to have a formal quality management system installed and working. It is obvious that the quality systems of all these organisations should be in a position to interact with each other.

d) DIMENSION 4:

The SAQA Act and regulations states clearly that each education and training provider is required to have a quality management system installed and working before accreditation is awarded to such a provider.

e) DIMENSION 5:

Where Skills Programmes and Learnerships are installed and pursued, some degree of quality control should be exercised to ensure that the requirements of the Act are complied with.

f) DIMENSION 6:

It is required from each organisation that is required by law to submit an annual workplace skills plan to comment on the Quality Assurance exercised over its entire skills development endeavour.

It is essential that the ultimate quality system that gets installed into training providers addresses all the identified six dimensions of quality as above.

2.2 SURVEY RESULTS FROM PROVIDERS

A survey was conducted among the constituent members of the education & training community to ascertain the presence of any form of formal quality management system. Herewith follows a summary of the results:
From the researched systems an overwhelming 76% claimed that they were aware of the ISO 9000 system; the knowledge about the other systems were almost non-existent.

It was clear that the respondents were unaware of what the difference was between standards and quality and that they had an inability to distinguish the difference between any of the existing systems.

It was patently clear that the respondents had no formal system of quality in place and from the response it was evident that very little understanding about quality was around.

A clear call for assistance and direction from the authorities went up with the indication that the criteria provided by the authorities are considered to be adequate direction.

This survey proved that the area of “Quality Management Systems” is a relatively new area of endeavour and that the industry would need considerable assistance and guidance to meet the requirements of the legislation.

3. GLOBAL QUALITY MANAGEMENT SYSTEMS

There are numerous Quality Management Systems operational in the world. Some of these systems are more than a mere “Quality Management System” and could be seen as a blueprint for organizational excellence. What seems to be the tendency in most organizations is that the process of the system is used to drive improvement in the organization. The idea of achieving an award presents no incentive at all and is the last thing on the minds of the organization’s management.

Herewith then follows a critical evaluation of the following “Quality Management Systems”:

- Malcolm Baldrige National Quality Award;
- European Quality Management Award;
- Australian Quality Award;
- The Koalaty Kid program;
- The Deming Prize;
- The ISO 9000/2000 Quality Management Code of Practice;
- Investors in People;
- The South African Excellence Model;
- The Balanced Business Scorecard
- The Scottish Quality Management System
- The recommendations that came forth from the research are as follows:
3.1 MALCOLM BALDRIDGE NATIONAL QUALITY AWARD

The MBNQA should not be considered as the quality management system for ETQAs;

The “Information and Analysis” base that the MBNQA works from should be copied and used as the base from which the ETQA quality management system should operate from;

That a hybrid of the MBNQA scoring process be used to evaluate especially the ETQA Quality Management Systems;

That SAQA considers using a Strategic Improvement Model (SA Model) to drive the quality improvement of ETQAs in the long term;

That the ETQA also design, or cause to be designed, support courses that should be made available to the constituents of the ETQAs. (This is one of the requirements under the requirements of the Act: “Quality Promotion”)

The authorities should seriously consider the initiation of an award system among its constituent providers; this will have a motivational effect on the use of QMSs and could also heighten the awareness toward Quality as a strategic imperative.

3.2 EUROPEAN QUALITY MANAGEMENT AWARD

The Quality Management System to be used by ETQAs should also have some “balancing” trait that would allow it to almost regulate itself;

The main focus of the Quality Management System for ETQAs should also be the internal and external customer;

For an uninitiated audience, the provision of various criterion parts that could be followed by the installer of the system can only make things much easier for all;

Any attempt to auditing and evaluating a Quality Management System for ETQAs should have the principle that EVIDENCE be made available to be evaluated embedded into it;

Every attempt should be made to entrench a self-assessment process into the use of a Quality Management System, especially for the providers of education and training. This would allow a culture of Quality to develop and will circumvent the notion to “police” the quality management system;

As with the MBNQA, the authorities will be well advised to institute the use of such a strategic quality improvement model as a long-term continuous improvement strategy in addition to installing a Quality Management System.

The authorities should seriously consider the initiation of an award system among its constituent providers; this will have a motivational effect on the use of QMSs and could also heighten the awareness toward Quality as a strategic imperative.
3.3 AUSTRALIAN QUALITY AWARD

As the previously mentioned models are all basically the same, Strategic Quality Improvement (Excellence) Models the recommendations for this model would basically stay the same. It is however necessary to stress that more information should be obtained on how the Australian Model was used and applied in their educational and training environments. As the skills development legislation in Sa has its roots in *inter alia* Australia, it would be very illuminating to observe how they went about to improve their education and training through the use of their model.

The authorities should seriously consider the initiation of an award system among its constituent providers; this will have a motivational effect on the use of QMSs and could also heighten the awareness toward Quality as a strategic imperative.

3.4 THE KOALATY KID PROGRAMME

The authorities should take the initiative to institute a similar programmed with their constituent providers as part of the organization’s social responsibility programmed;

Some contact with the Dept. of Education should be made at the very top level to propose that some sort of joint venture be embarked on where organizations that are into education and training form an alliance with the Dept. of Education on the issue of pursuing a programmed similar to Koalaty Kid.

3.5 THE DEMING PRIZE

The Deming Prize should not be considered as a Quality Management System for ETQAs but some of the elements of the 14 points of Deming should find its way into some “strategic quality improvement system that hopefully the SETAS will introduce soon.

The authorities should seriously consider the initiation of an award system among its constituent providers; this will have a motivational effect on the use of QMSs and could also heighten the awareness toward Quality as a strategic imperative.

3.6 THE ISO 9000 QUALITY MANAGEMENT CODE OF PRACTICE

The ETQA should utilize the ISO 9000/2000 quality management system as the base from which to develop a more customized quality management system that would address all the issues important to the ETQA’s functions as required by law;

The authorities should seriously consider the initiation of an award system among its constituent providers; this will have a motivational effect on the use of QMSs and could also heighten the awareness toward Quality as a strategic imperative.
3.7 INVESTORS IN PEOPLE

The Investors in People standard will fit in snugly as the quality assurance to be applied by organizations that merely have to submit their annual Workplace Skills Plans (These organizations will usually outsource their training to other providers);

Investors in People should form part of a larger Quality Management System that should be designed to suit for the ETQAs and the entire skills development movement;

Educational, training and communication sessions need to be organized for all skills tax-levy payers to attend, to become familiar with the aims and operation of the Investors in People standard;

An award process, administered by the SETAS and supported by SAQA, should be established where the organizations that do apply the IIP process simply in the management of their WSP can be rewarded and recognized. This award process could very well be in line with the guidelines as provided by the South African Excellence Foundation;

3.8 THE SOUTH AFRICAN EXCELLENCE MODEL

The award process concept should be adapted to be implemented among providers and even among SETAs. This would certainly have a motivational effect on the correct use and passion for quality;

The model should not be used as a Quality Management System for ETQAs but that SETAs might want to implement a longer term Total Quality Management-type process that should fuel the improvement of the SETAs as a whole.

3.9 THE BALANCED BUSINESS SCORECARD

The Balanced Business Scorecard is not suitable as a Quality Management system and should not be considered as one;

The BBS should be considered by the CEO of the SETA as a means to strategically manage the SETA.

3.10 THE SCOTTISH QUALIFICATIONS AUTHORITY QMS

Obtain more information about this Quality Management System and use it as a major building block in constructing a Quality Management System for ETQAs.

4. QUALITY MANAGEMENT SYSTEM FRAMEWORK FOR EDUCATION AND TRAINING

4.1 STRATEGIC IMPROVEMENT CONTINUUM
It was found that there is a distinct difference between Quality Management Systems and Strategic Improvement Systems. On the strategic road to a world-class condition one would find that quality systems form part of the bottom part of the continuum. It is usually at around the middle of this continuum that the improvement process changes gears to a more strategic improvement process encompassing the entire organisation.

It was found that there was a healthy mix between quality- and strategic systems that was researched. Only four of the ten systems investigated had any resemblance with a quality system whereas the other systems fall under the strategic improvement category.

See figure 4.1

4.2 NEED FOR SHORT & LONG TERM STRATEGY

A quality management system as required by law will necessarily include certain strategies and action plans to improve quality in the organisation. From the strategic improvement graph above it is clear that the organisation will have to initiate a short and long term strategy for improvement. The short-term strategy will include all the actions to get the QMS installed and to ensure that the following systems are in place:
The longer-term strategy will include the actions planned to initiate any move towards any of the strategic improvement models as discussed earlier. It could be visualized as the organisation being a big steel ball that is to be moved uphill. If the end of the hill represents world class then the planning necessary to ensure that world class is reached is called **QUALITY PLANNING**. The actions necessary to ensure that the steel ball actually moves uphill is called **QUALITY IMPROVEMENT**. The wedge that an organisation would install to prevent the steel ball from slipping downhill is called **QUALITY CONTROL**. Together all of these activities are called a Quality Management System.

The above figure explains the various components of a short and long-term strategy that needs to be installed into the organisation.

4.3 Basic Principles on which the Quality Management System for Education and Training should be based

The QMS should take cognizance and should be designed so as to take care of the six dimensions of Quality as depicted earlier in this paper;

The QMS should be implemented SETA-wide;
A QMS computer system need to be implemented simultaneously to the implementation of the quality management system itself;

The ISO 9000:2000 Quality Management System should be used as the base from which to construct the ETQA QMS;

The “training, awareness and competency” element of ISO 9000:2000 should be replaced and strengthened with the “Investors in People” standard;

The “Investors in People” standard should be utilized to apply Quality Assurance when considering the WSPs of member organizations (dimension 3);

The constituent providers of the ETQA should implement a compatible QMS to allow for interface over the Internet;

The QMS should form part of a short to medium term strategy with the SETA implementing a medium to long term Strategic Quality Improvement System;

The QMS should enjoy strategic importance and the accountability for its successful performance should lie with the CEO;

The ETQA Manager should take on the position as “Management Representative” as described in the ISO 9001:2000 code of practice;

The SETA should seriously consider the launching of a Quality Award process among constituent providers within its own sector;

4.4 Education & Training Quality Management System Elements

The following guidelines for a Quality Management System Manual should be followed stakeholders of education and training:

1. INTRODUCTION
   a. CEO’s Message;
   b. Executive Management Commitment;
   c. Table of Contents;

2. QUALITY MANUAL MANAGEMENT:
   a. Manual Review;
   b. Revision History;
   c. Registered Holders;
3. SCOPE OF THE QUALITY MANUAL:

   a. Description of the Organization;
   b. Scope of the Quality Manual;
   c. Normative References;

4. QUALITY MANAGEMENT SYSTEM REQUIREMENTS:

   a. Commitment & Leadership
      • Quality Policy

   b. Strategic Quality Management;
      • quality objectives
      • quality planning

   c. Equal Opportunities;

   d. Administration and Review:
      • Responsibility and Authority;
      • Management representative;
      • Internal communication
      • Control of documents;
      • Control of quality records;

   e. Planning and Management of Resources;
      • Provision of Resources;
      • Environment;
      • Financial Management;
      • Communication and Administration;
      • Staffing;
      • Staff Development;
      • Premises and Equipment;

   f. Health and Safety;

   g. Exceed Customer Expectations;
      • Marketing;
      • Guidance Services;
      • Customer focus;
      • Customer Satisfaction;

   h. Action and Realization of Products and Services
      • Program Design;
      • planning
• inputs;
• outputs;
• review;
• verification;
• validation;
• change control
• Program Delivery;
• validation of processes

i. Building Provider Relationships:

j. Evaluation:
• Assessment;
• Assessment for Certification
• Moderation

k. Measurement and Monitoring:
• customer satisfaction
• internal audit;
• measuring and monitoring of processes;

l. Analysis:

m. Control of non-conformity:

n. Improvement:
• Planning for Continual improvement
• Corrective Action
• Preventative Action

o. Strive for Excellence:

p. Policy Deployment:

q. Process Management:

r. Achieving Education and Training Quality:

5. PROCEDURES AND QUALITY PLANS (list of references)

6. TERMS AND DEFINITIONS