

Lennart Sandholm

*50 Years
of Quality*



Sandholm Associates was founded in 1971 when Lennart Sandholm started as a quality consultant. He had a background as the corporate quality manager of Electrolux for 10 years.

Lennart Sandholm

50 Years of Quality



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The cover photo was taken at the Jubilee Conference on May 31, 2011 by Erik Hagman.

Contents

Preface to the Original Edition 6

Preface to the Digital Edition 7

1 10 Years with Household Appliances 9

Employment at Elektroheliös Led into Quality 9

Wider Horizon and Greater Responsibility at Electrolux 15

Studies in the USA Gave Fruitful Ideas and Useful Contacts 28

CEO Hans Werthén Gave Inspiration to a Focus on Results 31

2 40 Years as Quality Consultant 37

The Consultant Career Started in a Norwegian Consultancy Company 37

Started a Company Under the Name of Björklund & Sandholm 39

Björklund & Sandholm Became a Subsidiary of the Swedish Management Group 49

Change of Name to Sandholm Associates 51

3 Training Makes Better Business Results 65

"I Will Come to Sweden and Give My Courses and Seminars. You Organize them!" 65

Increased Training Offerings 70

Invited Experts Gave Fruitful Inputs 72

The Quality Manager's Wider Role Called for New Competence 75

Study and Work Material for Continuous Improvement 77

Improvement Work by Six Sigma Is Based on Solid Knowledge 80

In-House Training is the Key to Success 83

Marketing of Training Offerings 86

4 Healthcare Became an Interesting Challenge 91

Danderyd Hospital Took the Lead 91

Other Hospitals Followed 99

5 Work All Over the World 103

Starting in Sweden with the United Nations 103

Dissemination to 40 Countries on All Continents 111

Many Individual Meetings to be Remembered 116

Many Unforgettable Experiences 120

First Westerner in China 127

CONTENTS

- 6 Joseph Juran - an Exceptional Mentor 143**
 - A Decisive Meeting in 1965 143
 - Juran at the Royal Institute of Technology Already in 1950 144
 - Juran Back in Sweden 1966 144
 - Frequent Participation in European Conferences 146
 - Significant Impact on the Development in Sweden 147
 - Great Demand Led to "Lectures by Electronic Means" 150
 - Contributions to Juran's "Quality Handbook" 153
 - "I Want to Meet these People" 154
 - More than 40 Years of Close Contact with Juran 156
 - Juran and Japan 161
 - Juran's Contributions to the Knowledge Base of the Quality Profession 162
 - Speech to Dr. Joseph M Juran* 168
- 7 Inspiration from Japan 173**
 - Japan Showed the Way 173
 - Inspiring Japanese Colleagues 174
 - To the Memory of Dr. Kaoru Ishikawa* 184
- 8 Contact with Professional Organizations 187**
 - European Organization for Quality (EOQ) 187
 - American Society for Quality (ASQ) 190
 - International Academy for Quality (IAQ) 194
- 9 University Education in Quality 201**
 - Linköping University of Technology 201
 - Royal Institute of Technology 202
 - Kasesart University 205
- 10 From Inspection to Effective Improvement Work 209**
- 11 Publication 219**
 - Books 219
 - Compendia 227
 - Study and Work Material 230
 - Articles and Conference Papers 231

CONTENTS

12 Recognitions	241
Sweden	241
International Organizations	243
Argentina	244
China	244
Jamaica	245
Philippines	245
United States	246
Uruguay	248
Name Index	251

PREFACE TO THE ORIGINAL EDITION

2011 was a jubilee year in my professional life. In the beginning of that year it was 50 years ago that I came into what has become my profession -- quality. Later in that same year it was 40 years ago that I had started a consulting company with a focus on this profession. Jubilees often lead to flashbacks and reflections. So it was also with me. What was it that brought me into this field of work and what was it that made it a career that lasted for half a century?

It was natural in this jubilee year to spend time on putting memories, thoughts and experiences in writing. Of course, there is more that could have been taken on board, but a restriction was necessary.

The 50 years of quality have been an exciting journey. Though not always planned, it was influenced by chances and personal decisions. The journey has taken me to many places and environments, where I have had the pleasure of meeting many capable and friendly people. These meetings have filled my journey with good memories and experiences. A warm thanks goes out to everyone who has contributed in this way.

I would like to express my thanks to my son, Fredrik Hökerberg Sandholm, who gave valuable comments on the graphic design.

The book was written in Swedish. As I did a lot of my work on the international arena, it became clear that an edition in English should be prepared. For this job I got valuable support from Ken Stephens, who kindly offered to go through my English translation. During my long career I have had the pleasure to meet Ken frequently in different parts of the world. There have always been fruitful discussions in an enjoyable atmosphere. The first time we met was at Rutgers University in 1965. Many thanks for your help, Ken! Your excellent inputs are highly appreciated.

Stockholm in August 2013

Lennart Sandholm

PREFACE

PREFACE TO THE DIGITAL EDITION

It is 50 years since Lennart Sandholm started his career as a quality consultant. This means that our company Sandholm Associates now can celebrate its 50th anniversary. In connection with this, we find it appropriate to publish a digital version of his book "50 Years of Quality".

In the book, Sandholm tells about his employment as the corporate quality manager of the multinational appliances manufacturer Electrolux, which then, through personal advice from Joseph Juran, led to a successful international career as a quality management consultant and lecturer. This took him to more than 40 countries on all continents. Among the clients are United Nations, national institutions and multinational companies. His international lecturing attracted 30,000 managers and other professionals from about 100 countries.

When China opened up for outside influences, Sandholm was the first Westerner to be invited to lecture on quality. His first lectures in the country in 1981 were the beginning of an enormous development in which Sandholm Associates still is strongly involved. This year marks thus a 40th anniversary of this commitment.

It is our hope that the digital release will reach additional readers who find the content to be interesting and inspiring.

Stockholm in March 2021

Lars Sörqvist
CEO Sandholm Associates



Mister Quality was the symbol of Electrolux quality improvement program, Quality 68.

10 YEARS WITH HOUSEHOLD APPLIANCES

EMPLOYMENT AT ELEKTROHELIOS LED INTO QUALITY

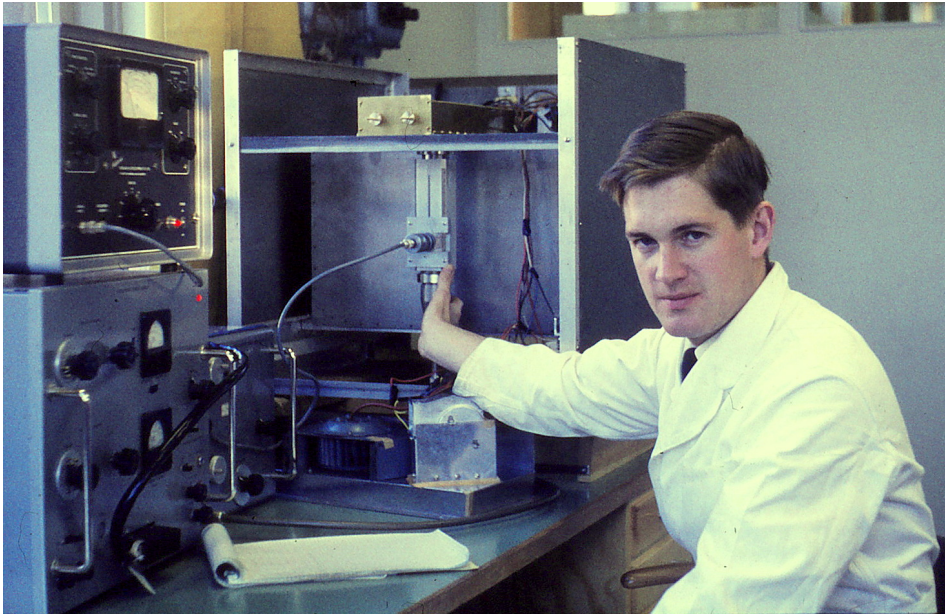
In November 1957, I saw a job advertisement that interested me. The company Elektroheli-
lios was looking for a laboratory engineer. I applied for the job and was called for a job
interview. I was hired and started to work as an engineer at the Elektroheli-
lios' laboratory on April 1, 1958.

Elektroheli-
lios was a wholly-owned subsidiary of ASEA¹ engaged in the development,
manufacture and marketing of a whole range of electrical household appliances, such as
stoves, refrigerators, freezers, heating elements, electric irons and toasters. The assortment
also included equipment for restaurants and other caterers. The head office was located in
Hammarby Industrial Area in Stockholm. In addition to a factory in Hammarby (stoves),
Elektroheli-
lios had factories in Alingsås (caterer equipment), Borås (irons and toasters),
Kallhäll (small refrigerators) and Mariestad (big refrigerators and freezers).

My main task was to work with the development of microwave ovens. In World War II,
radar equipment came into use. With the help of high-frequency electromagnetic rays,
which were generated by a magnetron, targets could be detected and the distances meas-
ured. After the war additional applications for the magnetron were sought. It was found
that these rays could be used for heating food. Around 1950 this technology started on a
small scale basis to be used for household appliances.

As the leading manufacturer of electric stoves in Sweden, Elektroheli-
lios decided to enter the microwave technology field. It was my task to penetrate this area with the aim of
launching a microwave oven. A cooperation was initiated with Philips which manufactured
magnetrons. The cooperation led to a visit that I made to Philips in Eindhoven, Holland, in
order to participate in the development of this area.

¹ The Swedish company ASEA merged with the Swiss company BBC Brown Boveri in 1988 to form ABB.

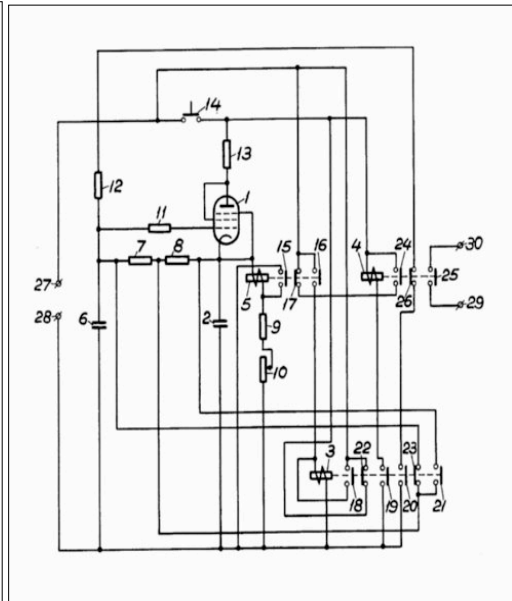
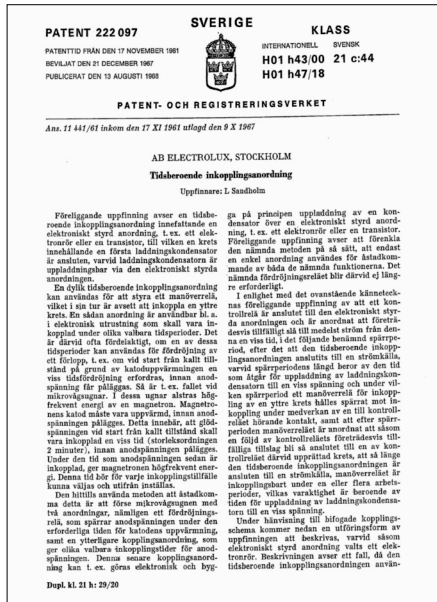


Development of microwave ovens at Elektroheliös' laboratory.

The commercial breakthrough of microwave ovens was slow. It began in the 1970's, as microwave ovens could be seen among other home appliances.

The tasks of a laboratory engineer were not limited to work in the microwave field. The work also included conventional products. This involved testing of new products and products of competitors, as well as testing of components. The laboratory was involved in the company's product development work and belonged to the Product Development Department.

A memorable and stimulating task during my time was to test washing machines in Paris. Elektroheliös had started a cooperation with the American manufacturer, Bendix, which at this time was one of the leading manufacturers in the field. From their factory in the outskirts of Paris, machines were delivered to Elektroheliös for marketing in Sweden. The sales manager in charge wanted me to go to the factory. At my first visit I found a lot of quality problems. At subsequent visits a shake-up had taken place.



The work at Elektroheliös' laboratory resulted in a Swedish patent on a switching device in 1967.

In January 1961, I started on a journey that has not yet finished even after 50 years. Quality became my profession. At the end of 1960 I was called to the company's Vice President for Engineering and Manufacturing, Nils Wollart. He told me that they planned to offer me the job of Central Quality Inspection Manager (Quality Manager in later vocabulary). Due to a lot of customer complaints, the company had decided to set up an organization for inspection. Each plant would have an Inspection Manager, and these would be controlled by a Central Inspection Manager. The latter job was advertised externally. But since there were no suitable applicants, the job was offered to me.

My answer to Wollart was that it seemed to be a less blithely job, as I would probably have to deal with errors and dissatisfied customers. Wollart asked me to give the matter some thoughts, and that we would meet again after a week. In the meantime, I reread books from my time at the Chalmers Institute of Technology. I didn't, however, find anything about quality.

When I met Wollart again, I told him that I was willing to try the job. He promised me the company's full support in my professional development, including study visits to other companies.

I took up my new task in January, 1961. Immediately, I was contacted by marketing and sales personnel. They gave examples of product failures, and asked me to take immediate corrective measures. They referred to individual cases and complaints. I found quickly that it was not possible to run an effective improvement work on the basis of such sprawl and incomplete information.

Elektrohelios had a Customer Service Department with the task of helping customers with failing products. The complaints came to this department, which, with the help of repair shops and mobile repairmen, provided assistance to the complaining customers. Consequently, the Customer Service Department would have important information. I contacted the head of the department and asked for information that could be useful in my improvement work. He was, however, not willing to share this. Perhaps he (a man in the 60's) thought that an engineer (just under half of his age) should not have this support.

What to do? I went up one level in the organization. I contacted the Vice President of Marketing and presented my problem to him. In order to be able to work effectively with quality improvements, which he and his personnel desired highly, I needed to have access to good documentation. However, the Customer Service Manager did not want to give me this information. As he was reporting directly to the Vice President of Marketing, the VP immediately telephoned him and imposed upon him to provide me with the information I needed.

Thus, I was admitted to the Customer Service Department. I entered a large room with shelves full of files with service orders. The orders contained information on each claim leading to action (customer, product, problem reported, measures taken, spare parts used, costs, etc.). This was very useful information for my work. But how would I be able to access the information? The solution was to hire a few university students who were given the task to go through the files, order by order for the latest year, and enter the relevant information into "mark-sensing" cards. These were cards on which marks were drawn in boxes with a soft pencil. The cards were then automatically punched in a punching machine and were sorted in desired order for printing.

With this technology I managed to get printouts of data on each product - failure rate, failure cost, failure types, failure symptoms, and measures taken. All this information was important for my improvement work.

10 YEARS WITH HOUSEHOLD APPLIANCES

"Mark-sensing" card for processing of information on complaints.

		Kont 2									
		Materialien k1		Sonstige k2		Kategorie		Serien		Fehler	
GARANTIEFELSTATISTIK	000	0	0	0	0	0	0	0	0	0	0
	111	1	1	1	1	1	1	1	1	1	1
	222	2	2	2	2	2	2	2	2	2	2
	333	3	3	3	3	3	3	3	3	3	3
	444	4	4	4	4	4	4	4	4	4	4
	555	5	5	5	5	5	5	5	5	5	5
	666	6	6	6	6	6	6	6	6	6	6
	777	7	7	7	7	7	7	7	7	7	7
	888	8	8	8	8	8	8	8	8	8	8
	999	9	9	9	9	9	9	9	9	9	9
P-445 (P-101)		ELEKTROHELIOS KUNDTJÄNST									
Kont 1		Kont 2		Kont 3		Kont 4		Kont 5		Kont 6	
1-10		11-20		21-30		31-40		41-50		51-60	
1-10		11-20		21-30		31-40		41-50		51-60	

There were many opinions about the problems and the reasons behind them, but without any support of facts. Product designers blamed manufacturing, manufacturing personnel blamed product design. In this classic discord, manufacturing was often the weaker party, since company management had more faith in those who worked with product development and design. I studied with great interest the first summaries that came from the IT Department. It was soon learned that the problem completely dominating the main product line (stoves) was a failure caused by design. The design personnel soon ceased their criticism of manufacturing.

Now I had the facts. The printouts showed which products and problems should be addressed. For me, it was obvious to choose what prevailed regarding cost and amount. It was an application of the Pareto Principle without having heard about this concept. The next step was to start an improvement activity based on the data acquired. Since there were many company functions affecting product quality, it was important to involve all of them in a structured way.

I realized that it was necessary to have a forum for prioritizing, controlling, coordinating and following through with the improvement work. A quality committee was set up for each product line. The committee members were the heads of the functions concerned (in the first place Product Development, Manufacturing, Purchasing, Marketing, and Customer Service). The quality committees themselves would not be solving the problems, but would ensure that they were solved. For specific problem solving, appropriate staff members were engaged having the necessary expertise.

My role in this work was to present facts about the quality situation based on the newly introduced feedback of complaints, and to provide for agenda, minutes, and action-items. These tasks allowed me to take a more active role in the improvement work.

In addition to introducing feedback of data on complaints (external failures), feedback of data on defects in manufacturing (internal failures) was also introduced. Hence, reports on the costs of scrap and rework were prepared. These reports showed the costs per unit responsible by product, part or component, defect type, defect cause, etc.

Through the systematic feedback of external and internal failures, and the setup of quality committees, an effective improvement work was carried out. This gave good results.

Not only did my work cover quality improvements, it also covered development of documented procedures for controlling quality in the entire organization. This also included the clarification of responsibilities. Documentation of this kind was included in the "Management Instructions". As these were issued by the CEO, they had an significant weight.

When I was offered the work as Central Quality Inspection Manager, I was promised to find time for my own professional development. Therefore, I immediately became a member of the Association of Chief Inspectors (now the Swedish Association for Quality) and of the American Society for Quality Control (now the American Society for Quality). I realized that membership in professional organizations would give me opportunities for fruitful contacts with other people in the same profession. In particular, the membership in the American organization turned out to be very important to my professional development. More on this later.

Another possibility for my development was to participate in professional conferences. In 1962, I attended the first international conference. It was a conference organized by the European Organization for Quality Control (now the European Organization for Quality) in Aix-en-Provence, France. This provided good contacts in the quality field.

I tried, of course, to obtain literature on quality at an early stage. There were two books that I studied with great interest. One was "Quality Control Handbook" by J.M. Juran, the other was "Total Quality Control" by A.V. Feigenbaum. With both these internationally well-known quality professionals, I later developed a very close friendship.

WIDER HORIZON AND GREATER RESPONSIBILITY AT ELECTROLUX

Elektrohelios merged in 1962 with Electrolux. From outside it seemed that the larger company, Electrolux with 25,000 employees, swallowed the smaller company, Elektrohelios with 2,500 employees. Formally this was true, but the reality was different. In 1956 Electrolux had already come into the Wallenberg sphere. The merger resulted in ASEA, being the sole owner of Elektrohelios, acquiring Separator's (now Alfa-Laval) shares in Electrolux. This meant that the Wallenberg sphere, through ASEA, was given full dominance in the merged Electrolux. The giant in Swedish business at that time, Marcus Wallenberg, was the driving force behind the merger.

It was evident that Electrolux lacked organized activities for quality. As a result, product quality was uneven. Vacuum cleaners was the only product line with good quality. This resulted from making significant investments in product development and production in this area. Adequate control of quality, however, didn't exist.

The situation within Elektrohelios was different. There were organized activities in the quality field, which had led to excellent and noticed achievements, through my work. The merger process clearly showed that Elektrohelios was much further ahead of Electrolux in a systematic approach to quality management. Hence, in 1963, I was given the task as Quality Manager to lead a new central quality department program for the whole of the new Electrolux. The department was placed at the headquarters² in Stockholm. With this appointment I was assigned much more responsibility than I had before.

After the merger Electrolux had about 30,000 employees. In Sweden there were several factories: Alingsås (caterer equipment), Borås (irons, toasters), Bromma in Stockholm (outboard engines), Essingen in Stockholm (vacuum cleaners and mixers), Hammarby in Stockholm (stoves), Kallhäll (refrigerators), Mariestad (freezers, refrigerators), Motala (refrigerators), Säffle (storage equipment), Västervik (electrical motors).

Unlike Elektrohelios, Electrolux had comprehensive international activities. It was, in particular, factories for the manufacture of vacuum cleaners in different parts of the world. The largest factory outside Sweden was in Luton, England.

² At this time a 15 year old boy worked in the office during summers distributing internal post. His name was Jörgen Gustavsson. Twenty years later he became a colleague in Björklund & Sandholm AB.



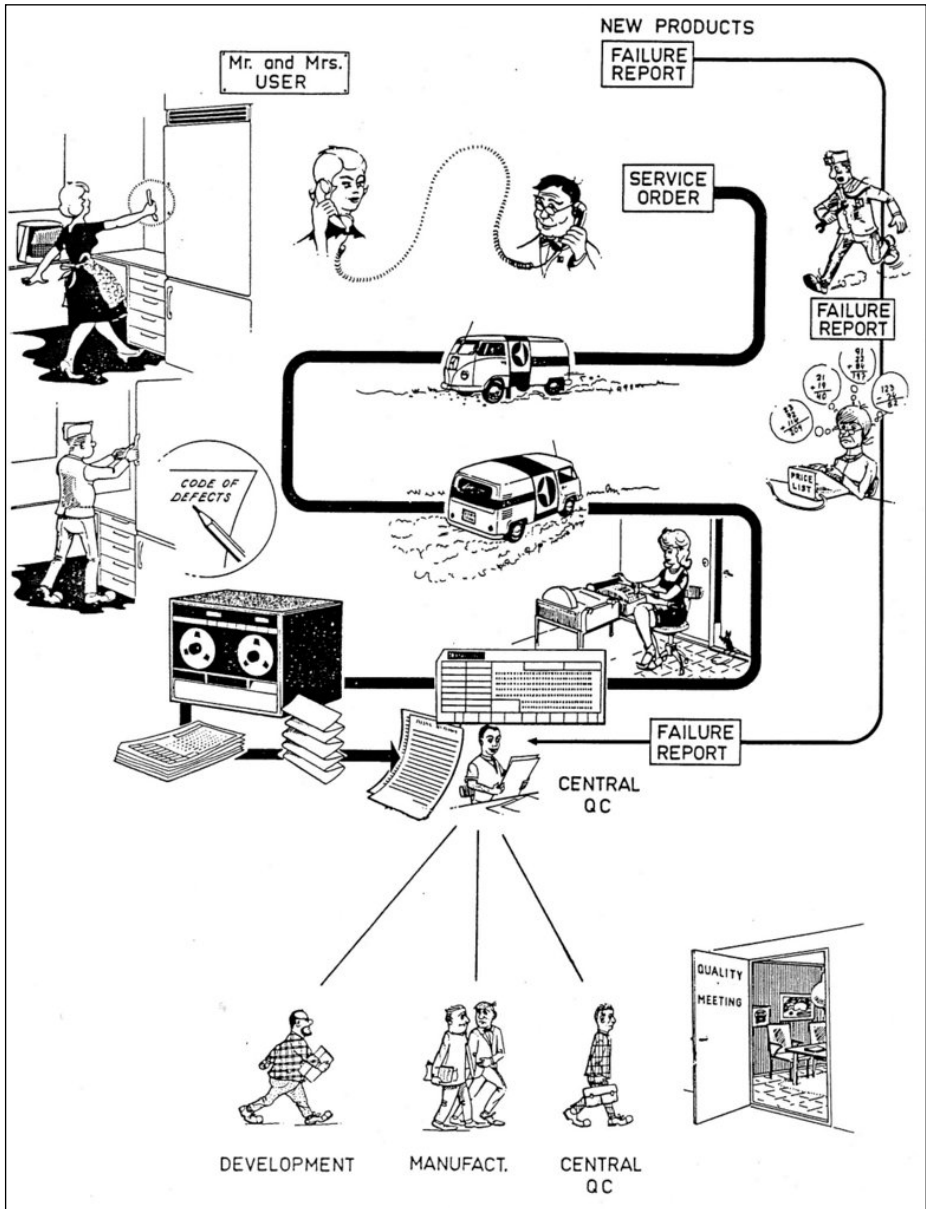
Electrolux' installations in Stockholm in the 1960's. My office was located on the second floor in the white building to the right and with a magnificent view. The big building to the left was the factory for manufacturing of vacuum cleaners. When this manufacturing later was moved out of Stockholm the factory was converted to open-plan offices. The picture also shows the marina that could be used by the employees. I sometimes had my sailboat there.

My work at Elektroheliös since 1961 had given me a good background for dealing with the much larger task as Quality Manager at Electrolux. I was able to act with greater confidence when it came to introducing concepts in a broader context. There were many successful examples to reference. Thus, it was no problem to introduce a systematic improvement program based on the feedback of external and internal failure data according to the model used within Elektroheliös.

All after-sale service carried out under the guarantee period was subject to a data feedback with summaries on different levels, laying the foundation for a structured improvement work. The highest level was a compilation, for each product and product line, of the guarantee cost, the number of service calls, the guarantee service rate³, and the guarantee cost per unit under guarantee. This information made it possible to identify those products that needed to be prioritized for improvement work. The next level was a compilation per product, giving information about failures in descending order of cost. This enabled the application of the 80-20 rule in the selection of improvement projects. It was before the Pareto Principle was known. Detailed information about each failure reported was included

³ The number of service calls related to the number of units under guarantee.

10 YEARS WITH HOUSEHOLD APPLIANCES



Feedback of guarantee failures at Electrolux.

on the lowest level. The failures were given in the order of manufacturing time for respective products. This enabled the effect of the corrective measures to be read easily. Based on my proposal each product unit was given a serial number which showed the time of manufacture. It was easy to find out if any failures occurred on units manufactured before or after the time the measure was introduced in manufacturing.

The guarantee service rate was a meaningful quality measure. As mentioned above, this measure was included at the highest level. It was easy to follow it monthly for each product. It could, however, easily become deluded with respect to newly launched products. If in this case, the number of service calls was related to the number of units under guarantee, one might believe that the new products were significantly better than the previous products. Then, one might think that the quality situation was good. Only a year later, however, an awakening might occur resulting in very costly consequences. In order to get an "early warning" I developed a correction procedure.

TABLE 43-5 Correction Factor for Guarantee Service Rate

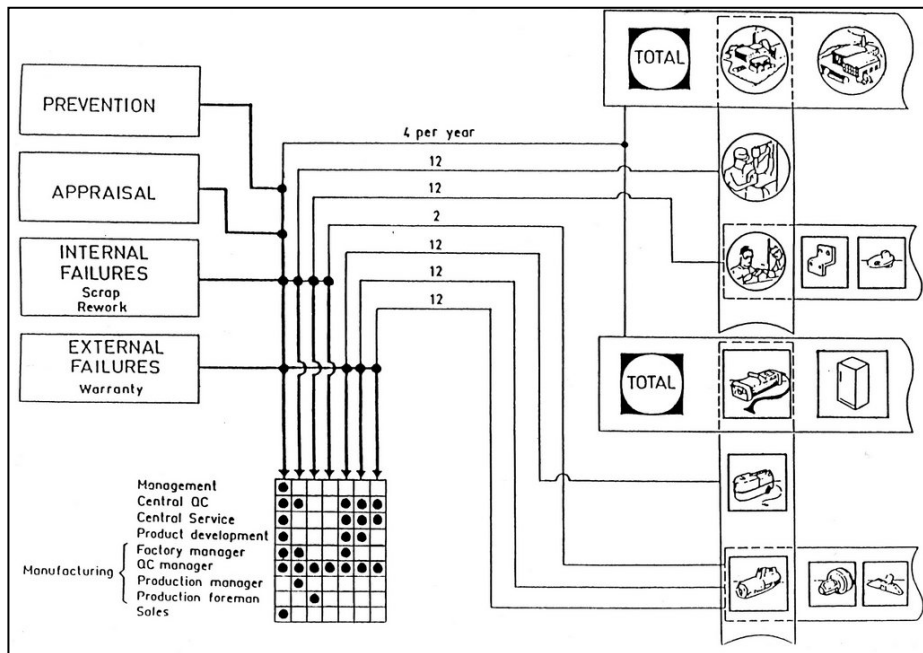
<i>n</i>	1	2	3	4	5	6
Factor		12.00	8.00	6.00	4.80	4.00
<i>n</i>	7	8	9	10	11	12
Factor	3.43	3.00	2.67	2.40	2.18	2.00
<i>n</i>	13	14	15	16	17	18
Factor	1.85	1.62	1.45	1.33	1.24	1.17
<i>n</i>	19	20	21	22	23	≥ 24
Factor	1.12	1.07	1.04	1.02	1.01	1.00

NOTE: The guarantee service rate is equal to the ratio between the accumulated number of service calls during a 12-month period and the number of units sold during 12 months immediately preceding the last month *n* in this period multiplied by the correction factor. For the first month the product was sold, *n* = 1.

In order to get an "early warning" a correction procedure was used at the calculation of the guarantee service rate. Here described in Section 43 of Juran's Quality Control Handbook, 1974.

A systematic feedback of data on defects appearing in the factories was introduced as well. This was done in the same way as previously done in Elektroheliol. The input was scrap and rework reports completed by production supervisors. The reports were the basis for monthly summaries of the internal failure costs and for charging the responsible unit in the accounts.

In order to stimulate interest in quality at the management levels, I introduced a quality cost feedback system. Included were quarterly reports to upper management. The reports included the total quality cost data specified by prevention, appraisal, internal failures and external failures. Data were specified per factory, sales channel and product line. Both actual costs and costs according to the budget were included. Development was presented in charts. These reports turned out to have a major impact on management's commitment, partly due to the fact that the CEO, Hans Werthén, showed a great interest in the content.



Quality cost data feedback at Electrolux. The picture shows content, frequency and recipients.

Another example of information that was given as a routine matter to managers was the result of product quality audits. The audits were carried out continuously on complete and packaged units leaving the assembly line for the warehouse. Defects found were charged with demerits reflecting the relative degree of seriousness. The average number of demerits was a measure of the quality of the outgoing products.

The organizational development was an important task for me at an early stage following the merger of Electrolux and Elektroheliös. Within each factory a Quality Department was set up directly reporting to the Factory Manager. Organizing the Quality Departments to report to the Central Quality Department had been completely wrong. By reporting to the respective Factory Manager, it was made clear that this manager had the full responsibility for the quality in the factory. The Quality Department was there to support the Factory Manager.

The Central Quality Department was a support to the factories. In the course of time, I was given additional resources when two experienced persons joined me. They had been Quality Managers of two major factories within Electrolux. Our department was perceived as very skilled and cooperative. Therefore, the Factory Managers were most willing to ask for our assistance. We were always involved at major development and extension work at the factories.

In my organizational development work the organizational charts, tasks and responsibilities related to quality were documented in a clear and authoritative manner. Since I had authored them, and had them out for comments, they were given to the CEO to issue them. This provided strength to the documentation.

In a large and geographically dispersed organization such as Electrolux, it was useful for key personnel to have access to all essential quality documents. This collection of documents became the company's Quality Manual. In order to strengthen its importance, the manual contained an introduction signed by the CEO. For products of a more strategic importance, the Quality Manual was supplemented by a Quality Control Manual describing the quality control activities.

After a few years, I found that it was time to step up the pressure and suggested that 1968 would be a year in which quality would be brought further into focus. The aim was to increase the understanding of all the staff for quality and its importance to the company's financial result. Many new procedures, methods, and techniques had been implemented. Now it was time to further stimulate the quality related activities. Top management immediately gave its support for a program with this focus.

The program was given the name, Quality 68. The program with the symbol, Mister Quality, included training activities, presentations in different contexts, introduction of quality manuals, development of vendor relations, poor quality cost data feedback, quality auditing, structured quality improvements, etc. Useful assistance was given by the sales promotion department. At that time, a well-known cartoonist in Sweden, Paul Ströyer, was engaged in preparing humorous and interesting promotion material.

Introduction

Electrolux benefits globally from an excellent reputation for the quality of its products, as well as for the service organizations maintaining that quality.

In order that the costs of this activity be kept within reasonable limits, it is important that quality is built into the products at development, design, and manufacture. To facilitate this work, it is important that clear specifications are prepared and used.

A support in this endeavor is this manual, which describes procedures and methods in quality related work. It is my hope and belief that all parties concerned will contribute to this creative work with a positive spirit of goodwill and with the greatest enthusiasm.

H. Werthén
H. Werthén

Quality policy, quality objectives

Organization

Quality system

- Specifications
- Quality methodology
- Reliability technics
- Measuring, testing
- Quality data feedback
- Human resources
- Preproduction activities
- Vendor relations
- Inspection
- Product quality rating
- Quality improvement

Kvali

4

5

6

7

8

9

10

Kontroll i tillverkningen

11

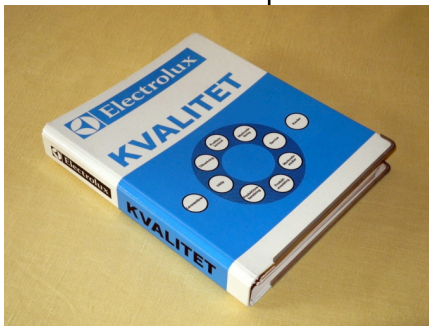
Kvalitetsbedömning

12

Kvalitetsuppföljning

13

Register



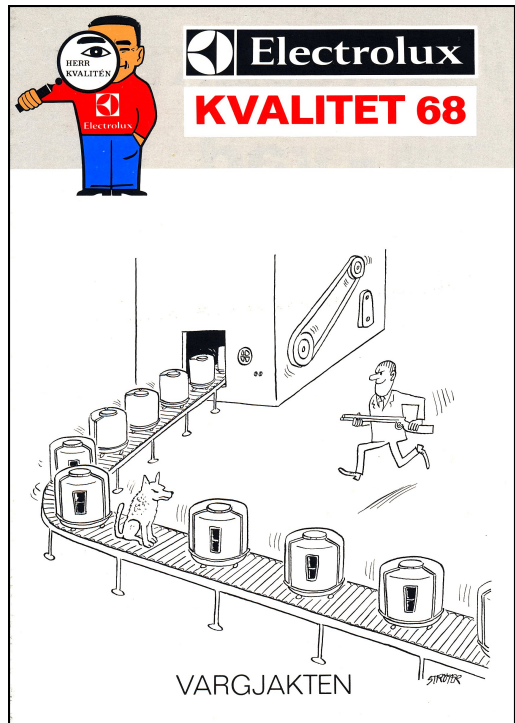
The Quality Manual's preface page with the CEO's introduction and the table of contents. The contents included documents related to the organization, job descriptions, procedures etc.

10 YEARS WITH HOUSEHOLD APPLIANCES

INSTRUKTION		Reg. nr	Blad
Tjänstensälls/Urförare	Handläggare	Utgivningsdatum	
VD	A. Scharp	2.10.67.	1
Ärende		Utgåva nr	Bilagor
Centrala kvalitetskontrollavdelningen FK		1	
Mottagare		Ersätter	
Se nedan			
För information			
<p>Funktion Avdelningen skall genom utarbetande av riktlinjer och genom rådgivning verka för att kvalitetskontroll genomföres och</p> <p>Responsibility and tasks</p> <p>Orga - To continually monitor that product quality is considered in development, design, and manufacturing.</p> <p>Verka - To develop and maintain a total quality system.</p> <p>Ansv - To monitor, analyze, and to report to upper management the development of product quality and related costs, to suggest measures and to follow up that the measures are taken.</p> <p>huvu - To suggest policy and goals related to quality.</p> <p>arbe - To take part in the handling of issues dealt with on a corporate level, related to quality and quality control.</p> <p>- To manage the contacts with external organizations in the field of quality and quality control.</p> <p>- Att delta i behandlingen av centralt behandlade frågor av sådan art att kvalitet och kvalitetskontroll berörs.</p> <p>- Att handha kontakterna med föreningar, organisationer, etc. inom verksamhetsområdet.</p> <p><i>H. Werthén</i></p> <p>H. Werthén</p>			
<p>VD A AD ADD AO AOK AP APE AS AU CH-PE(6) CI(2) CP D DK DM E EB(2) EBS EF EFK EK ER ERA ERB ERL ERM FO(2) I IR(10) IRS IS IX(3) IXD IXL IXM IXS IXU K KC KE KF KK KM KS KT OM P PF PK PS PT PU RA RAI RAR RAS RE(2) S U UA UD UE UF UK UM UN UP(2) US UT UV UX UZ AL(6) AT(12) CRF ES(11) HA(13) MA(9) MO(6) MB(10) ME(5) MK(11) SE(5) VK(11) EH(4) SF(5) VO GE ARG BEL BRA COL DAN EHD(2) EHF(2) EHN(3) FRA(2) GUA HOL ITA KAN MEX NOR(3) PER POR SPA(2) ÖST GR</p>			

Organization, tasks and responsibilities of the Central Quality Department were drafted by me and documented in company instructions published by the CEO.

An important element in Quality 68 was "Vargjakten"⁴. The aim was to encourage employees to be observant on opportunities for improvement. Conditions that could lead to defects and quality problems should be highlighted. For every risk identified, a lottery ticket was given where prizes were products from the company's product range. Those who presented concrete proposals for improvement received a monetary gift. "Vargjakten" became very successful. Several useful comments and suggestions were made.



Poul Ströyer contributed with illustrations to Quality 68. Here promotion for "Vargjakten" aiming at finding conditions that could lead to quality problems and defects.

⁴ "Vargjakten" means in English "The wolf hunt". "Varg" is a Swedish slang expression for defect.

Duktiga vargjägare i Motala

Vargjakten går mot sitt slut. De extra feta skottpengarna för höstmånaderna har lockat till stor aktivitet vid fabriken runt om i landet under jaktens slutfas. Vargar har fällts i långa rader, och belöningar — vargiakts- och penninglotter — har ymnigt utdelats till skickliga jägare.

Om belöning av jägare vid Motala-fabriken, som per den 18 november skjutit ihop till icke mindre än 96 vargiaktslotter, berättar bilderna nedan.

De nio som fick penninglotter för sina prestationer var, från vänster Gunnar Kempe, Gösta Andersson, Berndt Karlsson, Lars Larsson, Jan Reineblad, Karl-Erik Nooren, Stefan Asklöf och Sten Pantzar.

Närvarande vid ceremonin var också Ingrid Andersson, K. A. Jansson samt pristadelaren, Ol Emilsson.




Prickskytte vargskytten, ditills åtminstone, var Jan Reineblad, som på bilden t.v. av Ol Lars Emilsson belönas med fyra penninglotter för inte mindre än fjorton godkända påpekanden.

The in-company magazine was used in order to stimulate the interest for Quality 68. Here is the result of "Vargjakten" at one of the factories highlighted. (Electrolux Rapport, No. 4, 1968).

The systematic approach to quality at Electrolux was well known and respected outside of the company. Hence, I was invited to the European Quality Conference in Rotterdam in 1965 (arranged by the European Organization for Quality Control, EOQC) to present a paper on the quality approach taken by Electrolux. The title of the paper was "Improving Quality Assurance".

In 1970, verification of Electrolux's status as a role model for quality work was achieved when Joseph Juran asked me to undertake an assignment to write the section on household appliances in the forthcoming new edition of his Handbook. In 1974, for the first time, it was with great pride that I looked up Section 43, Household Appliances, in the Third Edition of the international reference book on quality, - J.M. Juran, Quality Control Handbook.

Session 7

**"QUALITY AND RELIABILITY ASSURANCE"
at Rotterdam Hilton**

Chairman: O. Jonson, Vice-President EOQC, Stockholm

14.00 hrs.

7.1 "IMPROVING QUALITY ASSURANCE"

by L. Sandholm, A.B. Electrolux, Stockholm



Mr. Sandholm graduated in 1955 from the Chalmers Institute of Technology, Gothenburg, as an electrical engineer, took his degree in 1963 at the Royal Institute of Technology, Stockholm.

He joined AB Elektrobeltios in 1958 as a laboratory engineer and was appointed Quality Control Manager in 1961. In 1963, Elektrobeltios was merged with Electrolux, and Dr. Sandholm is now Quality Control Manager of Electrolux and Head of the Central Quality Control Department at the Company's head office in Stockholm.

Dr. Sandholm is a member of the Research Committee for Quality Control of the Swedish Association of Metalworking Industries, a member of the Committee for Reliability of the Swedish Society of Quality Control Engineers, a member of ASQC and a member of the Board of the 1966 EOQC Conference in Stockholm.

Synopsis

The meaning of quality assurance is such that the heading Improving Quality Assurance will cover most of the activities for improving quality. But in order to obtain tangible results, it will mostly be necessary to give these activities such a scope that many of the different functions of a company are affected. In general, the quality control departments do not have a status necessary for the performance of these inter-departmental activities.

When building up its organizational structure, Electrolux has taken this into consideration. Towards this background the paper deals with some of the inter-departmental activities concerning quality assurance, e.g. reporting of quality costs and processing of field complaints.

*From the program of the EOQC
Conference in Rotterdam, September 6-9, 1965.*

En viktig förutsättning för att en produkt skall kunna säljas är att den håller hög kvalitet. Det är en av orsakerna till att industrin inte endast satsar hårt på kvalitetskontroll, utan även intensifierat dessa ansträngningar. De krav man ställer på kvalitet måste dock preciseras i ett tidigt skede, helst redan på konstruktionsstadiet.

Det var en av de många synpunkter som den amerikanske kvalitetsforskaren Dr J M Juran förde fram, när han den 8 juni talade vid en av Electrolux anordnad konferens på Essingen. Direktör Sune Ericsson, chefen för den centrala produktionen, kunde välkomna inte endast fyra direktionsmedlemmar utan också en stor skara kontrollingenjörer, produktchefer och andra experter från en rad olika fabriksenheter.

Dr Juran ser ut som en tvillingbror till teaterkritikern PGP i Vecko-Journalen, och likheten kan utsträcka till att säga att han är lika underhållande. Han är van att skriva (åtta tunga fackböcker) och tala. Det har han gjort i alla världsdelar. Han noterade särskilt vilken överbörd satsning som exempelvis japanerna gör och han förutspådde att det inom en icke alltför avlägsen framtid kommer att föra dem till en absolut ledarposition också internationellt. När det gäller kostnader för kvalitetskontroll räknade han med att vissa större amerikanska industrier satsar 1—1,5 procent av sin omsättning (Jämförelser är emellertid svåra att dra på grund av olika redovisningssystem).

Dr Juran inskärpte också nödvändigheten av att informationsfrågorna handläggs med omsorg — "Man kan inte klandra en anställd om han inte fått veta vad som skall göras och hur". Talaren nämnde aldrig ordet "prestige", men han betonade hur viktigt det är att



Ett dammsugarmunstycke är också en kvalitetsprestation, konstaterar Dr Juran (i mitten), som flankeras av direktör Sune Ericsson (t. h.) och tekn. lic. Lennart Sandholm. Nedan: Experter på kvalitetskontroll gör studiebesök i Dammsugarlaboratoriet.

Kvalitet A och O

storades på filmduken bal om talarens plats.

Dr Jurons föredrag följdes inte endast av en intern överläggning. Två dagar senare kom 35 kvalitetskontrollexperter från en rad olika länder till ett studiebesök på Essingefabriken. Det var deltagare i den X:e EOQC-konferensen — som för året var en världssammankomst

med första arbetsveckan i New York och den andra i Stockholm — och bland dem återfanns en japan, ett par amerikanare och vidare företrädare för en rad olika europeiska länder. I det sammanhanget beklagar Lennart Sandholm att man på grund av platsbrist måste begränsa antalet deltagare. På de utlagda teckningslistorna hade många fler önskat komma just till Electrolux.

Vid rundvandringen ägnade man sig särskilt åt dammsugarlaboratoriet. Tekniska direktören Ebbe Svensson gav en allmän information om Electrolux. Lennart Sandholm berättade om olika kvalitetskontrollinsatser inom koncernen, och civilingenjör Manne Terelius redogjorde i sin egenskap av kontrollchef på Essingefabriken för hur arbetet där bedrivs. Vidare hälsade man på hos Eva Göthberg i Provköket, och Tore Greborn visade "Från Lux till Electrolux" och kommenterade därtill. Som avslutning bjöds det på lunch i Markenteteriet, varvid enda deltagande damen Dr Zaludová från Prag (specialitet: maskindesign) och hennes manliga kolleger fortsatte diskussionerna i en mera angenämt kollegial anda. Den av gästerna som representerade det största företaget måste ha varit Dr Hanajiri från Japan. Mitsubishi har nämligen 85.000 anställda!



chefsingenjören lyssnar till förslag och synpunkter. I alla lägen och inför alla avgöranden är han chefen, men han måste kunna lyssna och vara öppen för nya impulser. Dr Jurons rykte som pedagog var inte överdrivet. Medan han talade löpte hans tuschpenna i snabba och säkra drag över ett papper, varifrån figurer och kurvor återkastades och för-

In connection with the EOQC Conference in Stockholm in 1966 Joseph Juran visited Electrolux and conducted a seminar for top management. Moreover a group of conference attendees made a study visit. Among them were Agnes Zaludova from Czecho-Slovakia (third from the left) and Ken Stephens from the U.S.A (second from the right). Both later became colleagues in the International Academy for Quality. (Electrolux Rapport, No. 3, 1966)

Section 43

Household Appliances

LENNART SANDHOLM ¹

Quality Control Consultant, Bjorklund & Sandholm, Stockholm, Sweden

Introduction	43-1	Transport Testing	43-13
Customer Relations	43-3	Pilot Production	43-13
Planning for Quality	43-4	Example	43-13
Definition	43-4	Manufacture	43-14
Preliminary Design	43-4	Vendor Relations	43-14
Final Design	43-4	Process Inspection	43-14
Pilot Production	43-4	Quality Assurance	43-18
Production	43-5	Measures of Field Quality	
Use	43-5	Performance	43-18
Specifications	43-5	Measures of Service Performance	43-19
Test Standardization	43-5	Quality Rating of Manufactured	
Reliability	43-9	Product	43-20
Appearance	43-9	Quality Costs	43-22
Standards for Safety	43-10	Data Plan	43-22
Preproduction Activities	43-11	In-Plant Quality Data	43-24
Design Review	43-12	Executive Reports	43-24
Laboratory Testing	43-12	Quality Improvement	43-25
Field Testing	43-12	Prognosis	43-26

INTRODUCTION

Household appliances trace their origin to the fireplaces and hearths of our forefathers. They used fire to cook their food and warm their bodies. They used primitive tools to wash their clothes and clean their dwellings. From these crude beginnings the household appliance industry has emerged to meet some vital human needs and to perform numerous household tasks through a wide variety of specialized appliances. These appliances can be grouped as to the systems of which they are an integral part:

Food preservation and preparation: refrigerators and freezers, ranges, ovens, food mixers, toasters, coffee makers, frying pans, dishwashers, garbage disposal units

Fabric maintenance: washing machines, driers, irons

Floor care: vacuum cleaners, floor polishers

Climate control: air conditioners, heating units, humidifiers

Most household appliances are powered by electricity, but a significant minority use gas. They are utilized in conjunction with other products such as food, clothes, carpets, and detergents. This interrelation with other industries requires that the

¹ Formerly Corporate Quality Control Manager, AB Electrolux, Stockholm, Sweden.

Introductory page of Section 43 Household Appliances in J.M. Juran, Quality Control Handbook, Edition 3, 1974.

STUDIES IN THE USA GAVE FRUITFUL IDEAS AND USEFUL CONTACTS

In 1964, I saw an advertisement on scholarships for studies in the USA. It was the Sweden America Foundation advertising the scholarships for the academic year, 1965-1966. Grants could be applied for to study in areas where the USA had a leading position. The study period was for 6 to 12 months.

I was interested in improving my quality knowledge by studies in the USA. As the Electrolux' top management supported this, I submitted an application for studying "total quality control". To my delight, I received a scholarship. There were 24 recipients of scholarships, among them Percy Barnevik, who later became the CEO of ABB. Electrolux gave me leave and supported me financially. In September 1965, I left Sweden for the USA together with my wife and our two small children. We came back in March of 1966.

In order to obtain help with the planning for my studies, I made contact with the American Society for Quality Control (ASQC). I had become a member of ASQC a few years earlier. ASQC provided a very positive response. It was recommended that I study at Rutgers University in New Brunswick, New Jersey. The university had an institution, called The Statistics Center, led by Professor Ellis Ott. Ott sent me a personal invitation. On our arrival we were well received by him and his charming wife, Virginia. They were very hospitable and let us stay with them before we could move into a student accommodation.

The Statistics Center was very forward when it came to the application of statistical methods in the area of quality. In addition to Ott, who was one of the founders of ASQC, there were two more quality pioneers at the Center - Harold Dodge and Mason Wescott.

On Ott's recommendation, I registered as a post-graduate student focusing on three courses:

"Interpretation of Data" with Ellis Ott

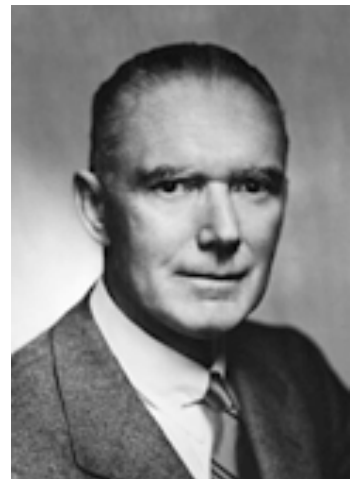
"Acceptance Sampling Theory" with Harold Dodge

"Design of Experiments" with Horace Andrews

Ellis Ott was a magnificent lecturer. With his industrial background he showed, in a simple way, how data could be analyzed to find out what should be done in a process to achieve a better result. His frequent advice was "Plot the data!". The documentation used at his lectures was later published in a book with the title, "Process Control".

In the 1920's, Harold Dodge was a member of the group within Bell Laboratories that had a ground-breaking impact on quality. Among other members were Walter Shewhart and Harry Romig. Dodge and Romig developed the methodology for statistical acceptance sampling. Their publication, "Sampling Inspection Tables", was published in 1940. During World War II Dodge was a consultant to the Defense Ministry to improve the effectiveness of the American defense industry. Dodge also developed the statistical methodology for the evaluation of data from product quality audits carried out at Western Electric, which was the Bell Company's manufacturing unit. With Dodge's guidance, I wrote a term paper entitled, "Product Quality Rating". In the paper I develop the theory for how an overall rating can be achieved, based on data for various products.

Ellis Ott and Harold Dodge – two pioneers in statistical quality control, both active at Rutgers University.



Horace Andrews got me to understand the strength of a statistical approach to Design of Experiments. I remember very well an assignment to find in the university library a scientific article in which the application of statistical methodology had led to a different conclusion than the one published. I managed to find such an article. When I came back to Electrolux, I used of the new knowledge of Design of Experiments. By means of this methodology I managed in a simple way to come up to the optimum composition of different parameters (quantity of components, temperature, pressure, etc.) for the purpose of achieving an ideal and cost-effective insulation of refrigerators and freezers with the use of polyurethane foam, which at the time was a new insulation material. The positive outcome was very disruptive to the experts at the company's chemical laboratory as they had not managed as well with this task.

10 YEARS WITH HOUSEHOLD APPLIANCES

Occasionally seminars were held with external lecturers. In this way, I had the pleasure to listen to two well-known experts in the field of Design of Experiments. One was Professor George Box (University of Wisconsin), the other was Professor Stuart Hunter (Princeton University).

Among the doctoral students whom I got to know at Rutgers were Edward Schilling, Ron Snee, and Ken Stephens. I have had contact with all three, subsequently; Ron and Ken through the International Academy for Quality. Ken and I have met several times in different parts of the world through his employment with the United Nations Industrial Development Organization (UNIDO) and Georgia Tech..



Ellis Ott with colleagues and students at picnic with Statistics Center.

My studies at Rutgers were carried out during one semester. In the meantime, but mainly after my time at Rutgers, I visited many companies to see how they worked in the field of quality. Some 40 companies from the East Coast to the West Coast were visited (among them American Standard, Bausch & Lomb, Borg-Warner, Bristol Meyers, Buick, Chrysler, Eastman Kodak, Electrolux, Ford, General Electric, Honeywell, Hotpoint, Hughes Air-

craft, IBM, International Harvester, Kelvinator, 3M, North American Aviation, Northrop-Norair, Philco, RCA, Sandia, Singer, Tappan, Western Electric, Whirlpool). Ellis Ott, who was a very well-known person among quality practitioners, provided help in planning and carrying out these study visits. His letters always opened the doors.

The fellowship studies in the USA had a major impact on my professional development. I learned a lot and saw with my own eyes how effective quality work could be carried out in practice. Much of what I found I had the privilege to apply within Electrolux, and later in my work as a consultant. In addition, the studies in the USA gave me a significant personal network within the quality profession. From this I have had great pleasure and benefit.

CEO HANS WERTHÉN GAVE INSPIRATION TO A FOCUS ON RESULTS

Marcus Wallenberg was not satisfied with how Electrolux developed after the merger. The expected financial result was not achieved and operations were stagnating. Hans Werthén, who was Vice President of Manufacturing at LM Ericsson, was recruited by Wallenberg in 1967 as CEO of Electrolux. Werthén deemed quickly that Electrolux was too small compared to the international competitors, but at the same time too large for remaining within a limited niche. His strategy was to expand by buying other companies and to broaden the activities. The strategy led to Electrolux becoming the world's biggest manufacturer of white goods in 20 years. A hundred or so competitors of varying size were taken over.

Werthén introduced at Electrolux a culture of business focus, market orientation, quick decisions, and a minimal bureaucracy. Top management was moved from an expensive office in downtown Stockholm to a factory rebuilt to open-plan offices.. Werthén chose to sit in a modest room at the entrance of the laboratory building. He made himself available for everybody, and answered the phone without any involvement by a secretary. Top management's canteen was closed and Werthén lined up for lunch as everybody else. He didn't select a specific table, but chose a place with regard to those with whom he wanted to have some discussions.



Hans Werthén was the CEO of Electrolux 1967-1974 and the Chairman 1975-1991.

In spite of the fact that Werthén was not my immediate boss, when he came to Electrolux, he made a direct contact with me to hear about the quality situation. Discussions on this subject took place not only in his office during regular working hours, but above all during Saturdays and Sundays in his home. Then it was time to discuss the situation and the possibilities for improvement.

For Werthén it was time to achieve results, which should be made quickly and without reservation and formalities. An example of this was his immediate response to my presentation of the company's cost of poor quality. "The question is whether we will halve the cost or bring it down to one third." was his immediate comment. And then directly, "Now we will select two stinkers, that is, two products from different product lines having many problems. I will give you a free hand to order action for these products wherever you find it necessary in the organization. Before that, you write an internal memorandum in my name that you have this authority. Then we distribute it in the whole company." For a young quality manager such a clear and trusting response from the CEO was something quite outstanding. The memorandum in Werthén's name was sent out. Later, I have often thought of this, when in management literature it is emphasized that business managers need to think of "visibility", i.e., take action that clearly show what they stand for and what they want to reach. For Werthén this was something quite natural. He didn't need advice from management gurus.

Werthén's reaction to the poor quality cost data was not just limited to what I mentioned above. Immediately he continued, "We must now quickly have a meeting with all senior managers for discussing the situation and what should be done about it. Since these managers' diaries are full during regular working days, we must choose a Saturday or Sunday.

Why not call for a meeting on Saturday in the next week? You write an invitation in my name!". The invitation was immediately distributed to about 60 senior managers. All of them turned up at the head office. Between 9 a.m. and 3 p.m. on that Saturday, intensive discussions were held, under Werthén's leadership, on the quality situation and what should be done to improve it.

How many quality managers have received such a response from their CEO? It should be noted that the cost figures shown to Werthén were not extremely high. In many companies, I have later found higher figures, without any significant reaction from top management.

Let me give another example of Werthén's result-oriented approach. Electrolux had a factory in West Berlin where refrigeration and freezer cabinets for supermarkets were manufactured. The Sales Department felt that there were many quality problems with these products. Werthén sent me to the factory to investigate the situation. The Factory Manager, who was an authoritarian person in his sixties, didn't listen to the views given by the young engineer from Sweden. Of course, immediately after my return, I reported my observations to Werthén. I had barely finished my reporting when Werthén phoned the President of the German subsidiary company with its office in Hamburg, "I am sitting here with Sandholm, and I have just heard his comments on the situation in your factory in Berlin. As the situation is, it might be better to close down the factory now. But I give the Factory Manager two weeks to clear up the situation, and then I will send Sandholm to the factory again." This gave a boost to the Factory Manager. On my following visit, significant improvement measures had been made. The Factory Manager's behavior was also quite different. Now he was positive to changes and courteous to me.

Werthén had a unique ability to quickly analyze data and to find out what was important. He was very interested in the quarterly reporting of poor quality cost data presented by factories, sales companies, and product groups. If Werthén noticed a less than good development in an area, the responsible manager immediately got a phone call from him. The manager then had to explain the situation and propose corrective measures. When Werthén called, the managers, who had not read the report quickly realized that in the future they must be better updated about quality situation within their own area of responsibility. After all, Werthén could call and ask questions.

Werthén had the ability to see the essentials and to get people to grow in order to achieve results. He demonstrated the meaning of the terms "hands-on leadership" and "empowerment" in a clear manner. This was for Werthén something quite natural and simple. Working close to such a leader sets consisting visions of good leadership.



In Werthén's second year as CEO, a comprehensive quality improvement program was carried out, called Quality 68. Werthén took an active part in the program. Here on the cover of the in-company magazine in which the program was presented. (Electrolux Rapport, No. 1, 1968).

Hans Werthén's transformation of Electrolux was very successful. Under his direction there were a number of companies incorporated into the group, Ankarsrum (Sweden), Getinge (Sweden), Husqvarna (Sweden), Atlas (Denmark), White (USA, brands as Fridgidaire and Westinghouse), Zanussi (Italy), AEG (Germany), and many more within the white goods sector. Two acquisitions not directly related to the core business was Facit (Sweden, office equipment and computers) and Gränges (Sweden, mines, steel works, alu-

10 YEARS WITH HOUSEHOLD APPLIANCES

minum and copper, vehicle safety belts). In 1967, the year Werthén took office as CEO, the Electrolux Group had 19,000 employees. In 1991, the year he retired as the Chairman, the number of employees was 130,000.

Due to Werthén's achievements he was considered to be one of the twentieth century's top business leaders in Sweden.

Bolags nr

156729

registrerat den

13 januari 1972

Björklund & Sandholm Aktieföretag med säte i Stockholm kommun, AB:

Register- uppgift nr	Datum för registrering	Förteckning över aktier	Aktiekapitalet i kr	Varav inbetalt kr	Bolagets nuvarande firma registrerad den
1	13/1 1972	21/1	5.000	5.000	se ovan

Registeruppgift:

Den 24 november 1971 beslöts bildande av Björklund & Sandholm Aktieföretag. Bolaget skall driva konsultverksamhet och utbildning inom kvalitetsstyrningsområdet jämt därmed förenlig verksamhet. Aktiekap. uppgår till 5.000 kr. skall utgöra lägst detta belopp, högst 15.000 kr. och är fördelat i aktier à 100 kr. Aktiekap. har inbetalts. Styrelsen har sitt säte i Stockholms kommun, AB. Bolagets postadress är Box 40098, 103 42 Stockholm 40. Bolagets räkenskapsår omfattar tiden 1/10 - 30/9. Ord. bolagsstämma hålles under februari eller mars. Meddelanden till aktieägarna sker genom rek. försändelser eller annan bevislig delgivning med envar aktieägare, kallelse till bolagsstämma senast två veckor före ord. och en vecka före extra stämma.

Styrelsen utgöres av Sven Olie Björklund, Uppsala kommun, C, Axel Lennart Sandholm, Stockholms kommun, AB, och Gustav Emanuel (Manne) Terelius, Stockholms kommun. Verkställande direktör är Sandholm. Firman tecknas, förutom av styrelsen, av Björklund och Sandholm var för sig.

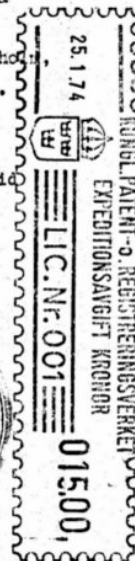
Bolagsordningen innehåller förbehåll om rätt för aktieägare att i vissa fall vid akties övergång lösa aktien och avvikelser från 119 § 4 ab, lagen samt förbud i vissa fall mot aktieförvärv. Samtliga aktier är bundna.

Registreringsbevis

Att denna kopia innehåller de senaste i aktieföretagsregistret för ifrågakvarande aktieföretag beträffande styrelse, verkställande direktör och firmateckning in-tagna uppgifter, betygar

Stockholm den 25/1 1972

I tjänsten



Björklund & Sandholm AB was registered as a stock company on January 13, 1972.

40 YEARS AS QUALITY CONSULTANT

THE CONSULTANT CAREER STARTED IN A NORWEGIAN CONSULTANCY COMPANY

In 1970, I began to reflect on whether it was time for me to start working as a consultant in the area of quality. I had managed to implement a lot of major changes in Electrolux. The company was perceived more and more as a pioneer in the quality work. Other companies often invited me to come and present what we did at Electrolux. It was seen as a market for work as a quality consultant? Consultants in the quality field were not known to me in Sweden. The situation was different in the USA, where I had met consultants with a focus on quality.

I discussed this possibility with Joseph Juran, in particular. He encouraged me to take up a consultant career. An example of Juran's encouraging attitude is what he wrote in a letter of May 15, 1970: "At the Pittsburgh Conference of ASQC I had occasion to meet with the Polish delegate, Mr. Zaskiewicz, with whom I have had much prior correspondence. He was very much impressed with what you have done at Electrolux, and with you personally. I have had similar reactions from Europeans in several other countries. Of course, this is also my reaction. I think, what I am saying is, that you make a very deep impression on strangers who have the opportunity to see what you have accomplished and to talk with you face to face in a quiet manner. This is a very great asset for a would-be consultant."

My decision was reinforced by an offer of employment by one of the leading management consulting companies in Scandinavia, namely IKO Consulting Group with headquarters in Oslo, Norway and with subsidiaries in all Scandinavian countries. The company employed hundreds of consultants. The offer came from a former colleague at Electrolux who had become Executive Vice President of IKO's Swedish subsidiary. My job was to start a new business area for the whole of the IKO Group - consulting services in the area of quality. My office was at the Swedish subsidiary located in a Stockholm suburb.

40 YEARS AS QUALITY CONSULTANT

I started the consultant career in January 1971, some 10 years after quality had become my task with the appointment to Central Quality Inspection Manager of Elektroheliös in 1961. I described in a folder the consultancy services that IKO could offer. Among the services were quality evaluation, organizational development, quality systems and procedures, quality improvement and training. Interesting in the current situation is that I already talked about Total Quality Control, 40 years ago.

I was aware that there was a great need for training in quality. Therefore, I developed four courses that were given in Stockholm, Copenhagen and Oslo. The courses were partly based on material that I had developed within Electrolux, and for which I received permission to use. The feedback on the courses was very good.



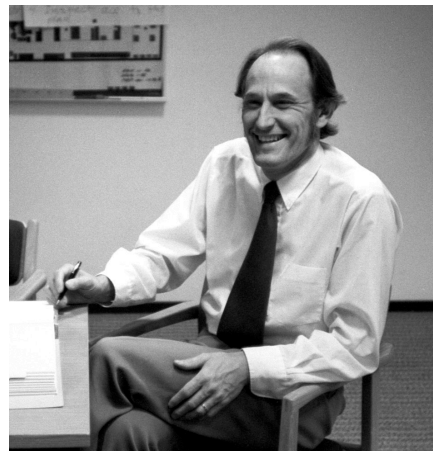
IKO's offerings were presented in a folder "Total Quality Control".

STARTED A COMPANY UNDER THE NAME OF BJÖRKLUND & SANDHOLM

The positive response to the courses, combined with a certain reluctance about IKO's internal culture, lead me to consider leaving IKO to start on my own consulting business. It appeared that the risk was small that my family with three children would starve.

During my time at Electrolux, I found that many quality problems were due to reliability deficiencies caused in the development and design phases. Already in the 1950's, the importance of the reliability of electronic equipments for military and space use had been given attention. Methods were used in the development and design phases to assure the reliability required. A leading and internationally known expert in this field was Olle Björklund. He had been responsible for reliability matters within the aircraft manufacturer, SAAB, before he became the head of the Defense Electronics Laboratory. I had engaged Björklund as a consultant in reliability for Electrolux.

In preparation for the establishment of a consulting company, I realized that the company would have wider offerings if Björklund's competence in the area of product development and design was included. My own experience in this area was limited. I presented the plans to him. He was very positive about starting a consulting company together with me. Even my former colleague at the Central Quality Department at Electrolux, Manne Terelius, became a partner.



Olle Björklund (1922-2010) founded Björklund & Sandholm together with me.

The company was given the name Björklund & Sandholm as we were both relatively well known in the quality field. To come up with a completely new name appeared to be less appropriate. I suggested that our family names be included in the company name in alphabetical order. That name was adopted. The company submitted an application for registration in October, 1971. Registration was given on January 13, 1972.

We rented office space in the Engineers' House located in downtown Stockholm. There we had access to office services and excellent facilities for training courses and seminars. The office was moved to a property in Djursholm (a Stockholm suburb) in 1974. In addition to the office, the property included my family residence.



*The Engineers' House in downtown Stockholm
where office space was rented in 1971.*

The initial intent was that Olle Björklund would end his employment at the Defense Electronics Laboratory in order to devote himself fully to the new consulting company. But he felt uncertain about the future as a consultant. Therefore, his consultancy work was carried out during leaves. Subsequently, the manufacturing company, Alfa-Laval, which was one of Björklund's clients, offered him full-time employment. He accepted the offer and continued to work as a consultant at Björklund & Sandholm on a part-time basis. Eventually, I bought him out as partner. I did the same with Manne Terelius who had been given an interesting long-term assignment as a United Nations expert in Iraq.

When I mentioned to Joseph Juran that I intended to resign from Electrolux in order to become a consultant, he regarded it as an excellent idea. He promised to come to Sweden

to give his courses and seminars under my auspices. A better launching for the consultancy could not be imagined. Juran's inputs are dealt with in Chapters 3 and 6.

Right from the start, public training courses and seminars were an essential element in Björklund & Sandholm's offerings. The program was developed continuously on the basis of needs found in companies and other organizations. The demand for public training grew. Training is dealt with in Chapter 3.

Björklund & Sandholm presented itself as a consulting company with a focus on quality. During the first 10 years, the consulting services were fairly comprehensive. Several well-known companies and organizations used our services (such as AGA Infrared, Ahlgrens, Ahlströms, Alfa-Laval, Astra, Billerud, Billman Regulator, Bulten-Kanthal, Höganäs, Dynapac, Electrolux, FMV, Hasselblads, Hägglunds, Iggesund, Kabi, LKB Clinicon, Marabou, Pharmacia, Pripps, RFSU, Rockwool, Rörstrand, SAAB-SCANIA, Sandvik, SCA, SSAB, Stal-Laval, Stora Kopparberg, Tour & Andersson, Uddeholm, Wirsbo Bruk, Vattenfall, and Volvo).

Many of the assignments were to evaluate the clients' quality activities and to propose measures for making their operations more effective. Initially, the usual approach was to inform all senior managers about the purpose of my visits and what I wanted to accomplish by conducting interviews with each one. The managers interviewed represented all functions, including the CEO. One week was usually allocated for the collection of information about the operations. The information was analyzed for each function and concrete proposals for action were given when appropriate. The client received a written report, which was supplemented by an oral briefing. The briefing presented to the managers how further work in the quality field could be developed. In this way, many companies started their development towards better quality.

An interesting example was the car manufacturer, SAAB. A few of the managers attended Juran's course in 1973 and found that there were clear opportunities for improvements in their company. This resulted in being asked to conduct a two-day training program in quality for managers. The training was carried out at a resort hotel. A component of the training included small group participation to evaluate their own activities, while coming up with suggestions for improvements. Many good ideas were presented.

The training influenced the General Manager, Rolf Sandberg. He saw great possibilities for profitable development and asked me to help with this as a consultant. Among other items, I recommended that a Quality Department be established, reporting directly to him. This was implemented. As there was no one in the company who was suitable to become the head of the new department, Sandberg asked me to undertake this task until an external re-

1. General	7. Quality audit
2. Preproduction activities	7.1 Product quality audit
2.1 Quality requirements	7.2 Quality system audit
2.2 Seriousness classification of requirements	8. Co-ordination of quality work
2.3 Testing	8.1 Quality policy
2.4 Design reviews	8.2 Quality goals
2.5 Activities and responsibilities	8.3 Quality system
3. Supplier relations	8.4 Quality organisation
3.1 Supplier selection	9. Organisation
3.2 Supplier survey	9.1 Organisation for acceptance
3.3 Supplier rating	9.2 Organisation for prevention
3.4 Conditions of purchase	9.3 Organisation for quality improvement
3.5 Purchasing documentation	9.4 Organisation for co-ordination
3.6 Initial samples	9.5 Organisation for quality assurance
3.7 Receiving inspection	10. Personnel
3.8 Certification	10.1 Training
3.9 Complaint procedure	11. Data feedback
4. Manufacture	11.1 Poor quality costs
4.1 Instructions	11.2 Internal failures
4.2 Process capability	11.3 External failures
4.3 Quality of parts for assembly	11.4 Inspection data
4.4 Initial sample	11.5 Product quality audit
4.5 Process inspection	12. Quality improvements
5. Inspection	12.1 Products in use
5.1 Receiving inspection	12.2 Products in manufacture
5.2 Inspection in machine shop	
5.3 Inspection in assembly	
5.4 Inspection planning	
5.5 Corrective action	
6. Customer relations	
6.1 Contacts with the market	
6.2 Product liability	

Outline of the consultant report on quality activities of a client company.

cruitment could be made. Of course, I accepted his offer. During the first half of 1974, I worked two to three days per week in this position. It was a very interesting experience. To be the head of the organization that I created was a challenging task.

The main task of the new Quality Department was to ensure that work on quality was carried out in an effective and appropriate manner. This included giving support to the various functions in matters related to quality. I was careful to point out that the new department did not have the responsibility for the quality. The responsibility was on the functions that directly influenced quality, primarily product development and design, production, and purchasing.

Three sections were set up in the Quality Department:

- Quality in product development and design
- Quality in manufacture and purchasing
- Quality in the marketplace

In my work as Quality Manager of SAAB, I took good advantage of the experience gained from Electrolux. As with Electrolux it was important that a systematic improvement program was launched. To start with, I focused on getting feedback on both internal and external failures. A quality committee was set up for each major component (engine and gearbox, body and chassis, electrical system, etc.). The members of the respective committees were leading representatives of product development, design, production, marketing, and after-sales service. The information obtained was analyzed, improvement projects were selected, and measures were adopted with follow up. The Quality Department was a driving force in the work of the committees. Good results were achieved.

In order to obtain information on the quality of the cars leaving the plant, a product quality audit procedure was implemented. On a daily basis, the Quality Department sampled ten cars that were closely studied. Any deficiency found was classified and given demerits due to the degree of seriousness. The deficiencies were reported with respect to function responsible: product development/design, purchasing, and manufacture. The quality audit provided management and other interested parties with quick information on the outgoing quality level. Trends could easily be monitored and assessed. The audit information was also useful in the work of the quality committees.

As a consultant to SAAB, I proposed that the Inspection Department with 250 inspectors should be eliminated and their tasks moved to the individual manufacturing units. The Inspection Department was a survival from the days when people believed that quality would best be ensured by a police function, fully independent from manufacture. Many companies had an Inspection Department organized in this manner. A significant disadvantage

with such an organization was that the responsibility for quality is unclear. Any inspection activities should, therefore, be carried out by those who directly affect, and thus have responsibility for quality. The General Manager, Rolf Sandberg, was very positive to my proposal, but the Production Manager objected. It was not the time to implement this change, and Sandberg did not want to go against his Production Manager in this change of the organization. A few years later, Sandberg called and told me that the Production Manager had left. Now the situation was different. I went to SAAB to help with the implementation of this change in the inspection organization. On a follow-up made a few years later, it turned out that the quality of the cars leaving the plant was improved. The reason was clear. The supervisors felt a greater responsibility for quality and their interest in preventing defects and errors had increased significantly. Incoming inspection was moved to the Purchasing Department. This meant that the purchasing agents had to deal with the consequences of choosing suppliers that were not so good. Also, in this area, the responsibility became much clearer.



The SAAB plant in Trollhättan.

The job as Quality Manager at SAAB was advertised. After the usual evaluations, a candidate was selected. He had worked with quality tasks in a management position in a major international engineering company. After a few years it was evident that this recruitment was not successful. On the job he acted like a Chief Inspector. He often went to the assembly lines deciding which cars were supposed to be accepted. He obviously felt more at home in a traditional inspection role. Of course, this was not his assigned task. He was

supposed to work for a company-wide approach to quality. Consequently, he had to leave SAAB. The existing Product Development Manager was assigned the job. I was asked to be his mentor in his new tasks. It was a good solution for the company.

At an early stage in my consultancy, I devoted myself to another engineering company as a consultant with Alfa-Laval. My task was to study the activities and to come up with proposals to improve effectiveness in the quality field. I interviewed many managers, among them the CEO. My proposals included, among other things, that a Group Quality Department should be set up with the task of coordinating and promoting quality work in the whole Group. My proposal was accepted and I assisted with the recruitment. After the recruitment I served as a mentor to the new manager.

Juran's courses led to several consultancy assignments. So it was with SAAB. Another example was the camera manufacturer Hasselblad. The company had a very good reputation for quality. The company achieved a great success when NASA chose Hasselblad as supplier of cameras for the space programs. Astronauts were provided with Hasselblad's cameras for taking pictures on the moon. An episode reported in the media was when the astronaut Michael Collins dropped his camera on a space walk. Hence, that the camera began to rotate around the earth as a satellite. This was good publicity for Hasselblad.

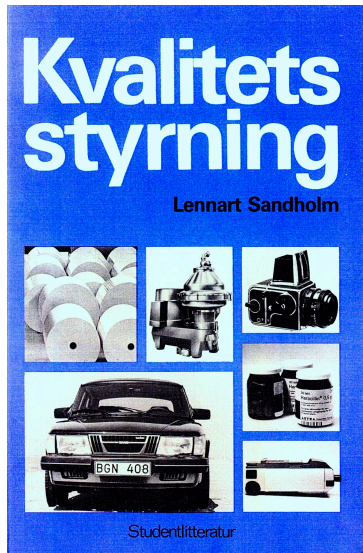


Walking on the moon with a Hasselblad camera.

Hasselblad's Technical Vice President, Jerry Öster, was highly influenced by Juran's message. He learned that the company would be able to work more effectively with an emphasis on quality, and asked me to come to Gothenburg where the company was located. It was found that they had a very extensive inspection setup. This was a remnant from Victor Hasselblad, who developed the camera and founded the company. In parts manufacturing, each lot went to an inspection room after each operation, and then to the next operation, etc. Hence, many people were busy with inspection work and internal transportation. I suggested that a direct control of quality in each operation should be set up. Another measure taken was to introduce a quality audit of cameras ready to be shipped. Öster later became the CEO of the company.

Other interesting companies where Juran's courses led to consulting assignments were Iggesund and Ahlström. Iggesund manufactured cardboard which was recognized to be of excellent quality. Among other things, the cardboard was used for whiskey bottle cases with

strict requirements for graphic print. Ahlström was one of the largest companies in Finland manufacturing paper, primarily, but also made equipment for the paper industry and pumps for nuclear power plants.



The cover of my book Kvalitetsstyrning (Quality Control) published in 1980 showed pictures of products from clients (Alfa-Laval, Astra, Electrolux, Hasselblad, Iggesund, and SAAB).

An unusual client was RFSU which requested assistance with the quality of condoms. RFSU imported condoms in bulk from the USA and Japan. The batches went to a sealed warehouse in the Stockholm Free Port. A certified laboratory sampled there each batch. After testing and approval the batches were released and sent to RFSU's plant where the condoms were packed and distributed. Together with management I introduced in the plant some further testing of the condoms.

The additional testing in the plant led to that RFSU in the advertising claimed that their condoms had better quality than their competitors'. A competitor reported RFSU to the Market Court for unfair advertising. RFSU's lawyer contacted me to get a memo to rely on in Court. By means of a statistical analysis, I was able to demonstrate that RFSU's condoms were of better quality than the competitors', which had just undergone the compulsory import testing. My memo resulted in that RFSU won the Court case.

Another client outside of the engineering industry was Rörstrand which made chinaware. I was asked to study their manufacturing processes in order to propose a more effective quality control. It was interesting be engaged in this industry which was completely new to me, and to be able to propose changes. It was exciting to work in a company that was founded in 1726, and which was known for the quality of its products for generations. A lasting memory of my work at Rörstrand is a comprehensive set of their classic chinaware, Ostindia, which exists in our cupboard.



Rörstrand was without any doubt the client having the oldest background. Here the Ostindia chinaware.

My consultancy assignments provided useful inputs for our training activities. This was an influence from Joseph Juran. In his courses and seminars, he often gave interesting examples from companies with whom he had worked. An assignment which generated a basis for a training course in inspection planning was my involvement in Sandvik's plant for making hand saws. It was a simple product suitable for preparing instructive assignments. Sandvik gave me permission to use what I had developed for them in a new training course. In addition, samples of saws, parts, packaging, etc. were provided. The course was timely and received a high level of participation. With translation into English, the assignments were used in our international training courses.

Assignments from clients were not only of an advisory nature. A significant and growing number involved in-house training courses and seminars. This is dealt with in Chapter 3.

It was gratifying to see that the demand for Björklund & Sandholm's consulting and training services increased significantly. This was done without contacting potential clients in order to get assignments. This increase in demand for consultancy services together with a growing international training effort (described in Chapter 5) led to a problem. It was evi-

40 YEARS AS QUALITY CONSULTANT

dent that a competent assistant consultant was needed in order to meet the demand. An advertisement in a leading daily newspaper in 1983 led to the recruitment of Jörgen Gustavsson as a backup consultant.

Jörgen had an adequate background for the job. He had a degree in mechanical engineering from the Royal Institute of Technology and had worked as Quality Manager for Atlas Copco. Attending Juran's management course, together with further training by myself, contributed to strengthening his competency.

With time, Jörgen became a skilled consultant and lecturer. He contributed significantly to the development of new concepts and training courses. Jörgen later became a partner in the company and is now one of the two principal owners.

During the following years additional resources were needed. In order to meet the growing demand, further recruitments were made. However, some of the new people didn't identify adequately with the consultancy activities in the same ambitious way that Jörgen had done. In addition, they often had their own rather narrow ideas on quality development. These ideas didn't fit well with the Björklund & Sandholm's proven model. Regrettably, it was noted that many recruitment efforts were less successful than others.



The staff in 1985.

BJÖRKLUND & SANDHOLM BECAME A SUBSIDIARY OF THE SWEDISH MANAGEMENT GROUP

Through the international training activities (see Chapter 5), I came in contact with the Swedish Management Group (MGruppen) which was a training and consultancy company belonging to the Swedish Employers' Confederation (SAF). MGruppen had responsibility for the administration of the international training courses, Björklund & Sandholm was responsible for the professional content and conduct of the training. Responsible for the international activities at MGruppen was Hans Ericsson. We had a very good and positive cooperation that led to a close friendship.

At a training visit to China, Hans and I were relaxing in a hotel room sipping whiskey and chatting about the future. The idea that Björklund & Sandholm could become a part of MGruppen was discussed. Such a merger was realized in August, 1987. Björklund & Sandholm became a wholly-owned subsidiary of MGruppen. No name change was considered at this time, since our business had become renowned under the name, Björklund & Sandholm.

Through MGruppen and SAF I had the opportunity to reach out to a broader spectrum of activity. Hence, I became MGruppen's representative in the Royal Swedish Academy of Engineering Sciences. Important to my development was that with the support of MGruppen and SAF I became an Adjunct Professor in Quality at the Royal Institute of Technology in 1989 (see Chapter 9).

In order to further stimulate the interest of quality in Sweden, the National Committee for Swedish Quality was founded in 1986, and later became the Swedish Institute for Quality, SIQ. In March of 1990, the National Committee for Swedish Quality and the Royal Swedish Academy of Engineering Sciences, organized a major conference entitled, World Class Quality, under the auspices of SAF and MGruppen (through Björklund & Sandholm). The conference brought together several hundred participants.

In today's perspective, it is interesting that at this conference the Six Sigma improvement approach was presented for the first time in Sweden. It was presented by Bill Smith who worked with quality matters at Motorola. A year earlier, he influenced Motorola's Chairman, Bob Galvin, to accept the implementation of his ideas on how to work on quality improvements. It was Smith who suggested that the improvement program be called, Six Sigma. Another proposal was to call it Zero Defects. This was rejected, however, as it was seen to have associations with programs having this same name that failed in the 1960's

(see Chapter 10). Six Sigma became very successful to Motorola. As Smith passed away in 1993, he never saw the fantastic results that his ideas led to in many companies all over the world.

SAF decided to focus its work exclusively on contractual matters related to the Swedish labor market, as well on having an impact on the Society. Therefore, managers within Mgruppen received an offer of management-buy-out. Consequently, once more I became the owner of Björklund & Sandholm.

Throughout the 1980's Björklund & Sandholm's training activities developed constantly. More and more companies had become interested in influencing profitability by means of quality. It was Japan's market success that awakened many business leaders in the West (more on this in Chapter 7). We were assisted in our development through the close cooperation with Joseph Juran and his consulting and training organization, Juran Institute. Björklund & Sandholm was appointed as the sole representative of Juran Institute to the Nordic countries of Europe. Annual meetings were held with the representatives when new products (courses, seminars, video programs, literature, etc.) were presented and when an exchange of ideas took place. This provided inputs to the development of our own training programs. Other international contacts contributed as well, in particular by my membership in the International Academy for Quality, IAQ (see Chapter 8). It was mainly the development in two countries that interested me, namely USA and Japan.

The 1980's (and even a large part of the 1990's) were characterized by various approaches and methods coming into focus. New players with limited knowledge and experience appeared on the quality consulting and training market, promoting their narrow products as being the solution to the quality crisis. In many cases this was easy to sell since company leaders themselves had limited knowledge of effective quality development. They also preferred a quick delivery without their own involvement. It was a period of trendy approaches and methods. The returns were meagre in that a results focus was lacking. I often warned against ongoing fashionable trends lacking depth. The development of quality activities are dealt with in Chapter 10.

Juran Institutes international representatives meeting in Wilton, Connecticut in November 1989. In the front row on the left is Howland Blackiston who was President of Juran Institute and in the middle Joseph Juran. In the second row on the left is David Hutchins whose company was the representative in the United Kingdom. In the picture we can also see in the third line on the right Blain Godfrey who succeeded Juran as head of Juran Institute. Björklund & Sandholm was represented at the meeting by LS and Lennart Hiller.



CHANGE OF NAME TO SANDHOLM ASSOCIATES

I was often asked who Björklund was in Björklund & Sandholm. In order to be spared from this query and explanations of the background, I realized that it was time for a change of name. Contributing to this was the fact that Olle Björklund was no longer a partner in the company for many years. Since my name had become well known, by over 30 years of quality efforts, it was clear that Sandholm should be kept in the company name. With regard to the major international activities, the name should also be applicable abroad. The new name became, Sandholm Associates. It was registered in 1995.

Earlier I mentioned the difficulty in the 1980's to recruit consultants and trainers. The only recruitment that had been successful was of Jörgen in 1983. However, in the beginning of the 1990's, there was a flash of illumination. Through my work as Adjunct Professor at the Royal Institute of Technology, I came in contact with a doctorate student, Lars Sörqvist. In 1994, he joined the company with the same energetic approach as Jörgen had done more than 10 years earlier. Lars got his doctorate in 1998. His thesis was entitled Poor Quality

Costing (see Chapter 9). His great interest in quality, combined with his structured approach, made a significant contribution to the company's development. In addition to this, he had the useful ability to easily express himself in writing. Since I stepped back from a more active working life in 2004, Lars became a principal owner of the company together with Jörgen.

A significant occurrence in the 1990's was that public organizations such as authorities, county councils, and municipalities became interested in developing the quality of their operations. This was caused by a crisis in the Swedish economy at the beginning of the decade.. Public activities received significantly reduced resources. In spite of this, it was necessary that these activities should still operate in an acceptable manner. The situation for health care was worsened by an aging population, which increased the load.

This resulted in an increasing number of contacts by public organizations for help with the development and improvement of their effectiveness. Health care became an important working area for us (see Chapter 4).

One of the authorities with whom we did a great deal of work was the National Board of Health and Welfare. Our support of the Board's quality development initiative included a seminar for the senior management team, an evaluation of the activities and proposals for action, training of personnel, process development, and procedures for continuous improvement.

The Swedish Prison and Probation Service contacted us in 2002 requesting a study of the work of the Judicial Department. A reorganization had been made a few years earlier. To begin with, it worked quite well. But in a significantly increasing number of cases to handle, in combination with a longer time period for handling them, a significant number of cases were not completed. The situation caused frustration and stress for the personnel. The risk increased of a lower quality in the handling of cases. My assignment was carried out by interviewing staff members and analyzing information that had been requested. The outcome was a report dealing with six areas:

- The Judicial Department's handling of cases
- Local units' handling of cases
- Quality of incoming decisions and documents
- Quality of outgoing decisions and documents
- Work situation for the staff personnel
- Leadership

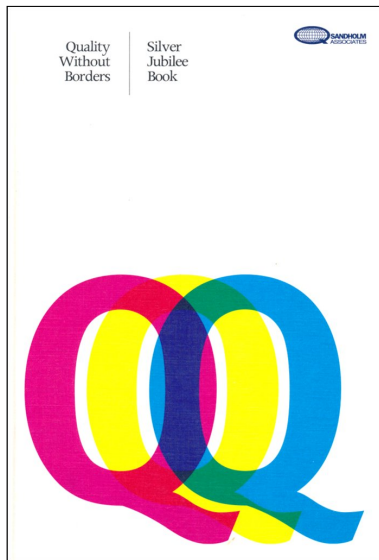
For each area a presentation of the current situation and measures proposed was given. It was a very interesting task in a new environment for me. The report was highly appreciated by the client.

Another interesting task related to quality in a new environment was that of Aftonbladet, the leading Swedish daily newspaper. I received a call from the Chairman who wanted a talk about quality. I then visited him. In our conversation he pointed out that it was not at all about the content of the paper. Primarily, he was concerned that the paper was available at all outlets in Sweden in early mornings. If the paper was not available, there was a great risk that the customer would buy a competing paper. This eventuality could cause Aftonbladet to lose its position as Sweden's largest daily newspaper. We came to the conclusion that the process from script to newspapers received by the outlets would be studied. In carrying out the study, the process at Aftonbladet was observed and people involved in the process were interviewed. Additionally, meetings of the Editorial Board were attended. It was exciting to follow the progress of discussions made each day in preparing a newspaper to attract its readers. It was also interesting to lead a top management seminar on quality at Aftonbladet. Among those attending were the Chairman and the Chief Editor.

In 1996, our company had been in operation for 25 years. This would, of course, be recognized in some way. We decided that it would be appropriate to publish a jubilee book with contributions from people we had been in close contact with in our work. A list of 20 names, desired as contributors, was put together. They were each approached about the book project. In the invitation, we asked for an optional contribution, but it had to deal with quality. All replied positively. The first one to reply was Juran. The title of his contribution was "A History of Managing for Quality: Summary, Trends and Prognosis". The jubilee book with the title, "Quality Without Borders", included contributions from several countries, apart from Sweden, Argentina, China, Czech Republic, Denmark, Finland, India, Japan, Norway, Switzerland, United Kingdom, and the USA.

Another activity that was part of our 25th anniversary celebration was a Jubilee Seminar, also with the title "Quality Without Borders". To the seminar we invited clients and partners. The seminar dealt with the quality situation in different parts of the world. Blan Godfrey spoke about the USA, Noriaki Kano about Japan, and I spoke about Europe. Moderator was SIQ's CEO, Johnny Lindström. Each participant received a copy of the jubilee book.

40 YEARS AS QUALITY CONSULTANT



The jubilee book "Quality Without Borders".



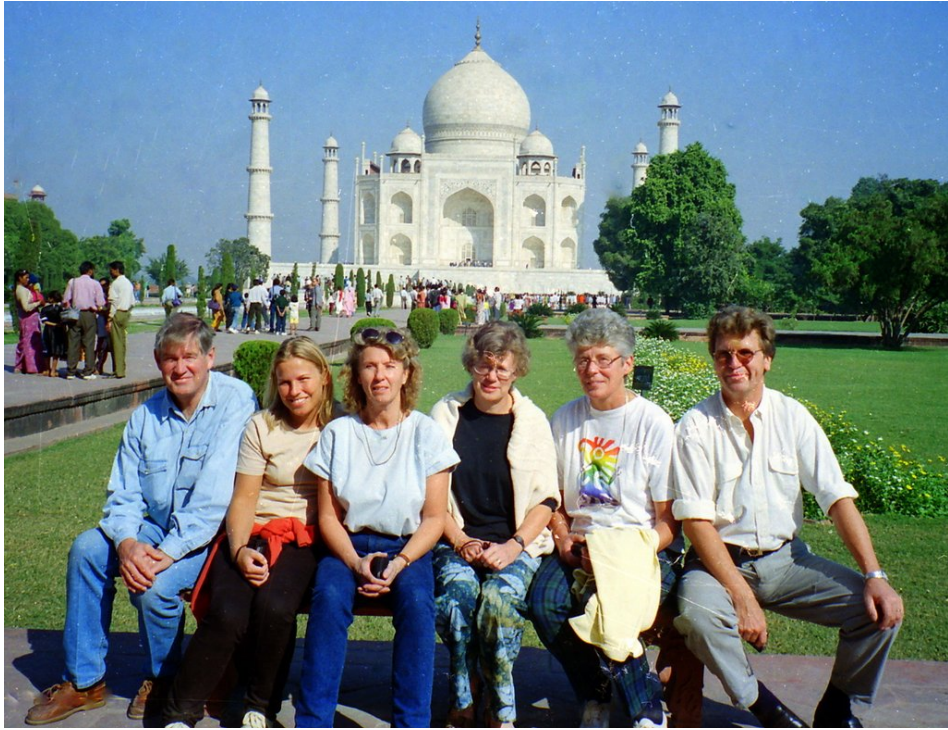
Contributing to the Jubilee Seminar "Quality Without Borders" in September 1996 were from left Johnny Lindström, LS, Noriaki Kano and Blan Godfrey.

40 YEARS AS QUALITY CONSULTANT

Magna Andreen, Sweden Introducing Total Quality Management into a Hospital	Yoshio Kondo, Japan Fostering Employees' Ability
Charles A. Aubrey, II, USA Self-Assessment, Strategic Quality Planning and Benchmarking: Preparing for Competitiveness in the 21 st Century	H. Lal, India Quality Strategy for Globalizing the Economy of Developing Countries
Asbjørn Aune, Norway Teams and TQM	Johnny Lindström, Sweden Quality Development as a Means of Increasing Competitiveness
Marcos E.J. Bertin, Argentina National Quality Award, Argentina	Yuanzhang Liu, China Dr. Sandholm's Contributions to China's Total Quality Management
A. Blanton Godfrey, USA The Evolution of Strategic Quality Thinking	Lennart Sandholm, Sweden Maturity in Quality – Still to Come?
Frank M. Gryna, USA An American in Quality	Enrique Sierra, Switzerland International Standards on Environmental Management Systems (EMS) ISO 14000 Series
Evert Gummesson, Sweden Service Quality is Different, Yes Different!	Brian Tilley, United Kingdom Understanding and Implementing the ISO 9000 Series of Standards to Achieve Successful Certification
Ove Hartz, Denmark Quality Management Requires a Cross-Functional Company Culture	Jorma Veräjänkorkva, Finland The Valmet Quality Journey
David Hutchins, United Kingdom Culture in Turmoil	Agnes Zaludova, Czech Republic Some Reflections on Quality Terminology
J.M. Juran, USA A History for Managing for Quality: Summary, Trends and Prognosis	
Noriaki Kano, Japan TQM in Japan: A Retrospective and Prospective Outlook	

Contents of the jubilee book "Quality Without Borders".

As the company grew, it became desirable to discuss mutual issues related to the development and the economy of our company. We therefore arranged internal conferences in which the entire staff participated. Sometimes, these were held abroad. This allowed combining pleasure together with developing the business. Cities visited were Helsinki, St. Petersburg, Prague and London. In the jubilee year of 1996 the conference was held in India. As my wife Annika Hökerberg was then working at the Swedish Embassy in New Delhi, we received good support on the spot. The conference program included visits to companies and sightseeing. In addition, we met Indians who had been on our international training courses in Sweden.



Staff conference in India 1996.

The interest in quality increased, which led to a proliferation of more and more consultants entering the field. Many of them had no genuine competence for assisting their clients in getting excellent results. They often recommended any current fad.

The period from the beginning of the 1980's, and about 20 years onwards was characterized by a diversity of approaches which became popular (see Chapter 10). Many organizations that followed advice from some consultants were disappointed. This led to a questioning attitude as to whether quality was actually a driving force for profit. In order to cope with this attitude, we started to talk about business development with a focus on quality instead of just quality development. In this way, we emphasized that the purpose of quality efforts was to develop the business to the betterment of owners, customers, and other stakeholders. It was also not enough to work with the products (both goods and services) provided by the organization. A broader perspective was necessary. This included

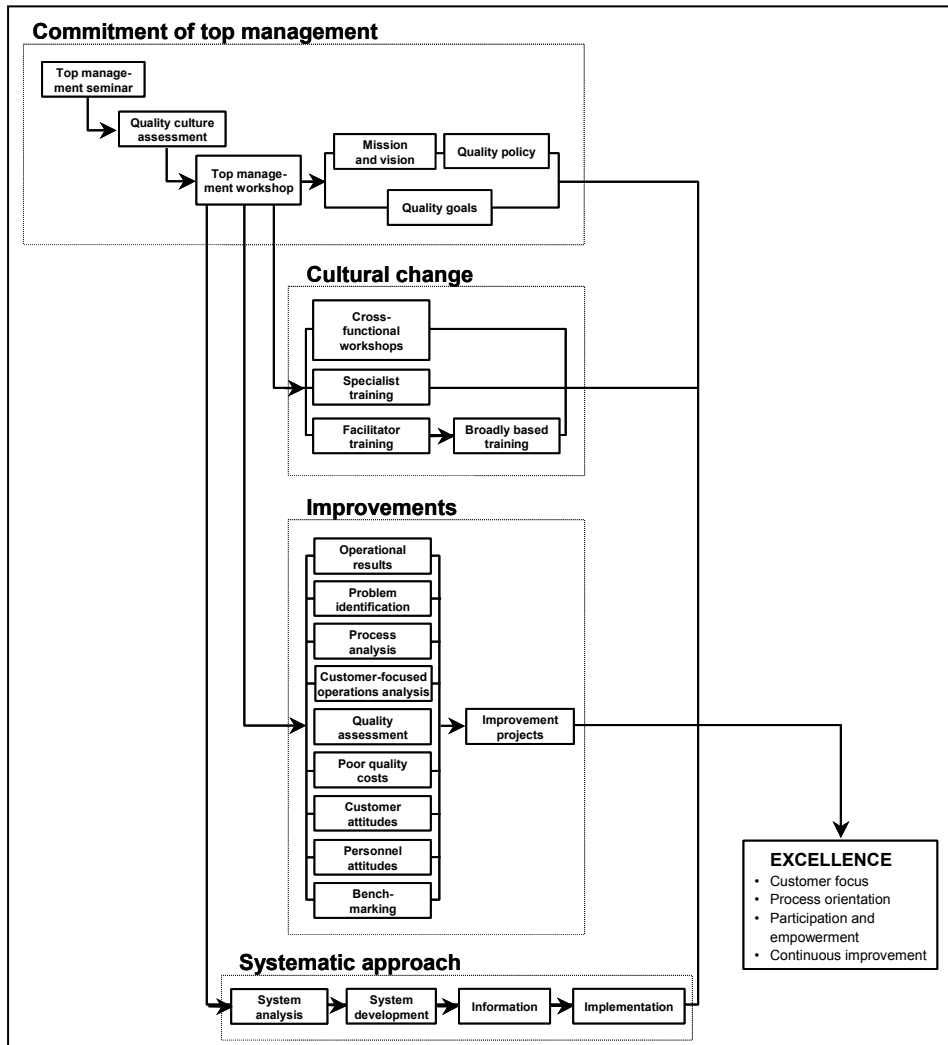
quality of all internal processes and functions, as well as a commitment from everybody in the organization. In order to develop such thinking we started to talk about total quality.

Organizations increasingly turned to us questioning what specific method or approach was recommended for them to use. There were many to choose among. For me it was clear that to answer questions of this kind would not necessarily help the inquiring organizations in their work to achieve significantly better results. In my experience broad and systematic efforts were necessary. I began outlining a model for a strategic plan for business development that could provide guidance to organizations. The plan would include all quality related activities (in principle the organization's overall activities) and combine the different concepts, perspectives, approaches, and methods (including trendy ones) in such a way that they lead to good competitiveness and effectiveness. The organization's internal culture, would be characterized by the principles of total quality. Basic elements of such a culture would be:

- Customer focus
- Process orientation
- Everyone's commitment and participation
- Continuous improvement

The model of a strategic plan gradually grew up in my consultancy work. It included four major components:

- Commitment of top management
- Cultural change
- Improvements
- Systematic approach



Model guiding many organizations in their business development.

In order to highlight the difference between organizations that were recognized to be good on quality (recognized champions) and those who had much to do (potential champions) I prepared a table. This presentation, combined with a ten degree scale, was used during the evaluation of organizations (often at in-house training).⁵

<i>Potential champions</i>	<i>Recognized champions</i>
Production orientation	Customer focus
Measures taken are based on opinions	Measures taken are based on facts
Activities focus on methods and tools	Activities focus on results
Only sporadic problems dealt with — i.e. “firefighting”	Chronic problems dealt with systematically
Problems dealt with as they arise	Preventive measures to avoid problems
Talking only	Action taken
Simple measures requiring no effort	Persistent and systematic work towards identified goals
Short-term view	Long-term view
Amateurish leadership	Professional leadership
Work concentrated to certain parts of organization	Work embraces all functions and levels
Everyone works alone	Co-operation and collaboration
Only quality staff trained in quality	Everyone trained in quality

Comparison between less successful and successful organizations.

Our close contact with the Juran Institute meant that we could offer training courses in the improvement concept of Six Sigma as early as 2000. This is discussed in Chapter 3.

⁵ I got the idea of the presentation at our management seminar on Japanese quality conducted by Noriaki Kano in Oslo, Norway in 1992. In a systematic way he presented (area by area) what successful companies in Japan had done. This was followed by a panel discussion in which Kano and I, together with two Norwegian executives, participated. I had carefully followed Kano's presentation. The result was a table with two columns (one for Japan and one for Sweden) which I showed in the discussion. The presentation came later, after some processing and additions, to lead to the comparison between “recognized champions” and “potential champions”.

40 YEARS AS QUALITY CONSULTANT



Sandholm Associates had from the middle of 1990's a "troika" – Lennart, Lars and Jörgen.



Consultant staff in 2003.

40 YEARS AS QUALITY CONSULTANT

Since the middle of the 1990's, it was really a "troika" that Sandholm Associates was dependent on to a great extent. It was Jörgen, Lars, and myself. The solid commitment to the company of these two colleagues made it obvious to me to eventually hand over the ownership to them. This was in 2005.

As the business increased, some additional associates were employed. These were people with good competence in different areas. In this way, we could offer our clients a broader program.

When more people were involved, it was desirable to express in writing what Sandholm Associates would stand for, and how the work would be carried out in principle. This led to a vision and guiding principles statement for achieving the vision, which was drawn up and communicated in 2004.

The office was moved to the center of Stockholm in 2006. We leased premises that made it possible to include training sessions, as well. It was an important step in improving the handling of these activities.

In the past year, the number of consultants and trainers have increased to more than 20.

In 2011 the company had been in existence for 40 years. This was celebrated with an anniversary banquet in connection with the Annual Conference on Lean and Six Sigma. The conference was attended by over 600 participants. Among the speakers were Tom Johnstone (CEO of the ball-bearing manufacturer SKF) and Leif Östling (CEO of the truck manufacturer Scania), as well as three well-known quality experts who have earlier participated several times in our programs - Noriaki Kano, Richard Schonberger, and Greg Watson.

Leif Östling (CEO Scania) and Tom Johnstone (CEO SKF) at the Jubilee Conference on May 31, 2011.



40 YEARS AS QUALITY CONSULTANT

Vision

At both the national and international level, Sandholm Associates is perceived as a leading partner in business development and total quality.

Guiding principles

Professionalism

Our clients shall get help and support which is characterized by sensitivity, competence and seriousness. Quality is for us a professional discipline.

Co-operation

Planning, implementation and follow-up of our consulting and training assignments is carried out in close and continuous co-operation with our clients.

Ethics

For us it is beyond all doubt that our activities shall be conducted in a manner that is fully consistent with good ethics.

Environment

In all activities we strive to protect both the internal and external environment.

Results focus

In all our consulting and training activities we strive for measurable results for our clients.

Improvement focus

In our work, we have a focus on our customers' potential for improvements. An analysis of the potential leads to the choice of approach.

Effective training

Participants in our training programs shall obtain thorough knowledge and ideas, which can easily be transformed into practical activities, as well as well as getting positive attitudes to quality.

Follow-up of results

Through close contacts with our clients we follow up the results of our efforts.

Continuous development

We are continuously developing our services and offers with the objective of better meeting our customers' current and future requirements, needs and expectations.

International outlook

Through our partners primarily in USA and Japan, as well as through our participation in the International Academy for Quality we get continuously valuable ideas that we pass on to our clients.

Vision and guiding principles for Sandholm Associates.

40 YEARS AS QUALITY CONSULTANT



Many well-known companies as clients.

It is with great pleasure that I can see Sandholm Associates continuing to develop in a very positive way under the leadership of my successors, Jörgen Gustavsson and Lars Sörqvist.

Training guide

- In the first place appropriate training
- Can be appropriate training

OVERALL TRAINING

	Page number	Upper management	Product development	Manufacturing engineering	Purchasing	Manufacturing	Inspection	Marketing	Customer service	Administration	Quality
JURAN: Making quality happen	4	●									
JURAN: Planning for quality	6	●	●	●	●	●	●	●	●		●
JURAN: Management of quality	8	●	●	●	●	●	●	●	●		●
SCHONBERGER: The world class manufacturing company	11	●	●	●	●	●	●				●
JURAN: Quality improvement for services	13	●						●	●	●	●
Upper management and quality	15	●									
Total quality control	16	●	●	●	●	●	●	●	●	●	●
Service quality	18	●	●	●	●	●		●	●	●	●
Quality audit	20	●		●		●	●				●
Quality improvement	21	●	●	●	●	●	●	●	●	●	●

SPECIFIC TRAINING

Product development and quality	23		●	●							●
Supplier quality	25			●		●	●				●
Manufacturing quality	27		●			●	●				●
Quality control engineering	29		●	●	●	●	●				●
Applied statistical quality control	32		●	●	●	●	●	●			●
Computer aided SPC	34		●	●		●	●				●
Gage control	35			●		●	●				●
Inspection planning	37			●		●	●				●
Quality costing	38						●			●	●

TRAINING MAKES BETTER BUSINESS RESULTS

“I WILL COME TO SWEDEN AND GIVE MY COURSES AND SEMINARS. YOU ORGANIZE THEM!”

This was Joseph Juran's generous offer when we talked about whether I should become a consultant or continue at Electrolux. When my decision was made, Juran began his involvement in Björklund & Sandholm's training offerings by giving the top management seminar "Profit and Growth from Quality" at the Engineers' House in Stockholm on March 6, 1972. After 40 years, the content is still of vital importance. The seminar was directed at business leaders and senior managers. However, only a few business leaders were among the attendees. They were still lacking in an understanding of the importance of quality to the company's activities and results. Quality was usually seen as something that inspectors were responsible for on the factory floor.

The content of Juran's management seminar "Profit and Growth from Quality" as it was presented in the invitation.

9.00— 9.15	Registrering av deltagare.
9.15—12.30	Quality and income. How quality influences company sales, income and profit, and the modern means to utilize this relationship. Launching new products. How to use modern managerial tools to minimize the risk that new designs will create undue troubles in manufacture, sales, usage and service. Marketing of quality. How to identify market opportunities based on sale of quality, and how to hold the resulting customers. Quality and costs. How quality influences company costs, and the means for bringing these costs to a minimum.
12.30—13.30	Lunch.
13.30—17.00	Improving quality. How to identify, diagnose and remedy the vital few chronic quality problems. Quality leadership and survival. An examination of some massive forces which are converging on industry (Government regulation, Product liability, Consumerism, etc.) and some proposals for responding to these forces. Upper management and quality. The role of upper management in mobilizing the company's resources to secure improvement in quality and profit. Diskussion och avslutning.

Kvalitets- styrning

Kurser

Våren

1973

Björklund & Sandholm

Rådgivning och utbildning i kvalitetsstyrning och tillförlitlighetsteknik

84

Veckans affärer 16 mars 1972

Veckans namn

*OBS!
Ronneby Bruk
7-11 maj 1973*

Joseph M Juran — kvalitetsens Grand Old Man

Kvalitet = vad kunden önskar

"Japan är utan tvekan det ledande kvalitetslandet i dag — men i övrigt är det svårt att göra en gradering. Många länder ligger ungefär lika väl framme och Sverige hör självklart till de nya taggupp efter japanerna", säger jur och tekn dr Joseph M Juran — rumäniänkan — som nyligen varit på ett av sina många Svergebekör för att lära svenska företagare att förbättra sin produktkvalitet. Han återvänder senare i vår i samma ärende. **Kurserna sker i konsultföretaget Björklund & Sandholm AB i Gagnef.**

Den jämna situationen — om man bortser från Japan — gör att kvaliteten i dag knappast fungerar som konkurrensmedel, fortsätter dr Juran. "Man säljer inte på små kvalitetskillnader — i stället blir konkurrenskraften i pris och i reklamresurser utslagsgivande."

Denne eckorröde och mustaschprydda kvalitetsens Grand Old Man har arbetat med kvalitet i snart ett halvsekel. I dag reser han industrivärlden runt och lär ut kvalitet — som kursledare eller som konsult åt enskilda företag (till de nuvarande kunderna hör bl a Fiat i Turin). Han är uppskattad inte minst för sin **WILL** — förmåga att göra konstruktiv jordan.

Bakom det japanska "kvalitetsundret" (som han själv bidragit till) ligger enligt Joseph Juran en enorm kvalitetssträvan på alla nivåer i företagen — från VD-rummet till verkstadsgolvet.

Kvalitetsarbetet i amerikanska företag sker via expertutdelningar — men på andra nivåer saknas träningen vilket innebär koordinationsproblem. I Östeuropa — t ex Sovjet — är kvalitetsstyrningen centraliserad till ett standardiseringsorgan som är mellanhand mellan producent och konsument ("det tar därför alltför lång tid innan konsumentens reaktioner ger effekt").

Krav effektiv styrning

"I västeuropa tycks ni ännu inte ha funnit de former för konstruktion och produktion av kvalitet som är bäst lämpade för era förhållanden", säger Joseph Juran. "Europa har ännu inte fått sin tekniska ansiktslyftning — men måste arbeta på att nå fram till den. Det är hög tid för Europas tekniska revolution."

Att skylla kvalitetsdefekter på illlojal arbetskraft utan ansvarskänsla — sådana tongångar är inte ovanliga — har Joseph Juran inte mycket till övers för. "I 80 procent av fallen beror bristande kvalitet inte alls på arbetarna utan på företagsledningen som inte tillräckligt effektivt styr företaget mot kvalitet."

Hans definition på rätt kvalitet: fitness for use — en produkt som ger nöjda kunder.

Hans recept för att uppnå detta: Analysera först kundkraven, identifiera och rangordna de tio viktigaste bristerna hos produkten. Se samtidigt över kostnadssidan och bestäm hur mycket kvaliteten får kosta. Gör därefter upp programmet för kvalitetsstyrning inom företaget — och följ det.

"En ökad satsning på kvalitet behöver inte innebära ökade kvalitetskostnader", säger dr Juran. "En effektiv styrning har ställt i flera fall visat sig kunna skära ned kostnaderna kraftigt — ibland till hälften. I dag kostar kvaliteten genomsnittligt 5-10 procent av företagets omsättning — men andelen varierar kraftigt."

Se till användningspriset

En nackdel i kvalitetsutveckling är enligt dr Juran att priskonkurrensen i dag är alltför hårt koncentrerad till försäljningspris och inte till användningspris.

"Dagens konsument ser bara till inköpspriset och inte till kostnaden på sikt ens för långlivade kapitalvaror som bilen — ofta

familjens största investering näst huset. Garantitiden är oftast bara en bråkdel av bilens livstid. Hur kostnadsbilden sedan ser ut fäster man inget avseende vid — vilket naturligtvis lämnar fältet fritt för reservdelindustrin att sätta priserna högt. Det finns dock tecken på att totalpriset — dvs användningspriset — blir framtidens försäljningsargument."

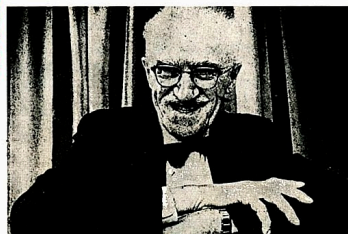
De många företag som har allt att vinna på en sådan utveckling borde själva snarast bidra till den genom att i ex vid sidan av den konventionella försäljningen också tillhandahålla specialkvantiteter med låg användningskostnad där — sådana är framtidens "hip-endument."

Men Joseph Juran vill också varna för alltför hög kvalitet: "Det viktiga är att satsa på rätt kvalitet — dvs den kvalitet som motsvarar kundönskemålen."

Men **och inte minst köpmän!** — är Joseph Jurons önskemål. Vill

ket dock inte hindrar att han med irritation talar om "demagoger som Ralph Nader som tyvärr har makten i dag och som ställt till med så mycket skada". Till de missriktade kvalitetsinsatser som drivits fram av "demagogerna" räknar dr Juran bl a det lagstiftade kravet på säkerhetsbälte i bil.

"Trots att endast några få procent av bilisterna i dag verkligen använder säkerhetsbälte måste fabrikanterna förse varje bil med sådana. Något samband med konsumentönskemålen har bälten alltså inte och därmed utteblir naturligtvis också säkerhetseffekten. Från olycks synpunkt är det föraren och inte bilen som är det främsta problemet och alltså det man bör inriktas på. Vill man verkligen spara liv vore det betydligt vettigare att t ex förbjuda tobaksrökningen, vilken en enhällig vetenskap betraktar som direkt hälsofarlig och orsaken till många dödsfall."



Dr (såväl jur som tekn) Joseph M Juran, 68, en av världens ledande kvalitetsexperter, är värd för svensk industri efter många Svergebekör — det senaste helt nyligen.

Han är född i Rumänien men bosatt i USA sedan 60 år. Anställdes 1924 som ung ingenjör vid Western Electric Company och har sedan dess — med undantag för krigsåren 1941-45 — varit assistent vid krigsministeriet — ägnat sig åt kvalitet. Har under efterkrigstiden arbetat bl a som professor, konsult, kursledare och författare (också i företagsledning i mer allmän bemärkelse). Av hans tio publikationer är den mest kända "Quality Control Handbook" — ibland kallad kvalitetsens bibel och nu aktuell för en tredje utgåva.

During Juran's visit in March, I contacted Veckans Affärer (Business Weekly) for an interview. The interview was published under the heading "This Week's Name" (see Chapter 6). This was, of course, good advertising for us. I used the interview in the marketing.

Juran came back two months later and gave his five-day course "Management of Quality Control". Participants came from all of the Nordic countries. They had a background limited mainly within the inspection function of their companies. The course was very well received. The participants were fascinated by Juran's presentations.

The course included a solid documentation. In addition to a loose-leaf notebook which included an outline of each section with references and visual aids, the books "Quality Control Handbook" (later editions with the title "Quality Handbook") and "Managerial Breakthrough" were included.

- 1 THE QUALITY FUNCTION**
- 2 CREATING CHANGE – BREAKTHROUGH**
- 3 QUALITY POLICY AND OBJECTIVES**
- 4 QUALITY AND INCOME**
- 5 QUALITY PLANNING**
- 6 ORGANIZING FOR QUALITY**
- 7 LAUNCHING NEW PRODUCTS**
- 8 THE "ABILITIES"**
- 9 VENDOR RELATIONS**
- 10 MANUFACTURE OF QUALITY**
- 11 MANAGING INSPECTION AND TEST**
- 12 MARKETING OF QUALITY**
- 13 OPTIMIZING QUALITY COSTS**
- 14 IMPROVING QUALITY**
- 15 MOTIVATION FOR QUALITY**
- 16 MANPOWER FOR QUALITY**
- 17 MANAGING THE STAFF QUALITY ACTIVITIES**
- 18 THE ROLE OF UPPER MANAGEMENT**

The content of Juran's course "Management of Quality Control".

TRAINING MAKES BETTER BUSINESS RESULTS



Juran conducting the course "Management of Quality Control" at Park Avenue Hotel in Gothenburg, 1975. Just half of the room is seen on the picture.

Juran was a brilliant lecturer. In spite of the fact that he always was sitting at the overhead projector he captivated the audience. He shared his experience and knowledge in an inspiring way. An advice he gave me to make a lecture more interesting was not to start with theory, but with examples from real life and then round off with theory based on the examples. Since Juran had achieved a wide experience in his long consulting career, he was very successful in lecturing this way.

Juran wanted Olle Björklund and me to be engaged as lecturers. Hence, he taught us how to present his material. Consequently, Björklund was responsible for the presentation of the section on product development, and I handled the sections on supplier relations and poor quality costs. However, we found it difficult to replace Juran. In addition, the participants had come to the course to listen to him and not to us. After a couple of years Juran realized the same.

In addition, Juran didn't feel the same need for Björklund and me to serve as lecturers since Frank Gryna began to share the lecturing. Gryna had a solid background in both industry and academia. He was also a brilliant lecturer. Juran also received great help from Gryna as an author. They wrote the book, "Quality Planning and Analysis", together. Gryna has contributed significantly to the development of the various editions of Juran's Handbook.



Juran and Gryna lecturing at the Engineers' House in Stockholm.

Every year up to 1989, Juran came back to lecture. The course "Management of Quality Control", later known as "Management of Quality", was given many times. In addition, he conducted a management seminar entitled "Making quality happen". He wrote in his memoirs, "Architect of Quality", that he visited Sweden 31 times.

Juran received invitations to many companies through us. I had the pleasure to escort him on these visits. In this way we visited several leading Swedish industrial companies where Juran met executives for presentations and discussions. He always asked them for information on their three most serious quality problems. A vague response indicated, according to Juran, an ignorance of their quality situation, a concrete response, a good insight. He advised me, when meeting top managers, to ask this question in order to find out how much they really knew about their business.

Juran's last visit to Sweden was in 1989. At the age of 85 he gave a two-day management seminar. This was part of Juran's "Farewell Tour to Europe". Apart from Stockholm, he visited London and Paris. It was not for reason of age or fatigue that Juran had decided to cease lecturing outside of the United States. In fact, he was very alert. Traveling took too much time. He said, "I have fifty years of work in front of me. At my age, I have to prioritize what I am doing. International traveling takes too much time."

However, Juran came back to Sweden, but not physically. In 1997 he took part in a global interactive seminar with the title "Leadership Strategies for the New Millennium" by satellite. By means of a cooperation between the Royal Institute of Technology and Sandholm Associates, about 100 people were able to follow the seminar in Stockholm, together with participants at about 1,000 locations throughout the world.

INCREASED TRAINING OFFERINGS

In addition to Juran's courses and seminars, we offered our own training courses, from the start. In a few of these courses we included material that I developed at Electrolux and for which we received the company's permission to use.

Early in my quality carrier I found that there was a great need in industry for knowledge of how effective inspection work would be conducted. In order to meet this need, I developed a three-day course on quality control engineering and inspection planning. The course covered how inspection work should be planned in a systematic way. The training included several assignments based on my consultancy work at Sandvik's factory of hand saws (see Chapter 2). When the course was launched in 1972, 120 people registered. In order to be able to carry out the first course, we booked the largest room at the Engineers' House. For several years, the participation continued to be excellent..

Courses given in the 1970's were:

- Quality control engineering and inspection planning
- Quality cost and data feedback
- Supplier relations in quality
- Product liability and safety
- Reliability and environmental testing
- Applied statistical quality control

From the beginning, a policy was established that the participants would receive a solid documentation in the form of books and compendia. Consequently, the participants were able to concentrate on listening to the presentations without thinking of making notes. The documentation could be used as a reference in their work upon returning from the training. For documentation used in the training courses, reference is made to Chapter 11.

In order to make the training more fruitful for the participants, we included examples from practical work. This was made possible since I was very much engaged in consulting work in industry during the first 10 years (see Chapter 2). Examples from the consulting assignments could easily be included in the training. Learning was enhanced by giving the participants exercises that they carried out in groups or individually. Such exercises were also an outcome from the consulting work.

From our start in 1971, good documentation, content with real practical background, and illustrative exercises have been guiding principles in our training.

TRAINING MAKES BETTER BUSINESS RESULTS

During the ensuing years additional courses and seminars were added:

- Company-wide quality control
- Quality improvement
- Quality audit
- Poor quality costing
- Quality assurance in production
- Top management and quality
- ISO 9000 in practice
- Product development and quality
- Process orientation and management
- Reliability analysis
- Total quality management

The participation in the domestic public courses and seminars has always been good. Thus, the total number of participants in the public training offerings since the start in 1971 is more than 25,000 and in the in-house training more than 20,000. The participation in the international training is dealt with in Chapter 5.

During the early years, the courses and seminars were usually held at the Engineers' House in downtown Stockholm, where we also had our first office. Eventually, we found it advantageous for the participants to hold the courses and seminars in a centrally located hotel in Stockholm. After some searching we selected Hotel Birger Jarl.

Hotel Birger Jarl was suitable for our courses and seminars. The hotel had rooms of various sizes.



INVITED EXPERTS GAVE FRUITFUL INPUTS

At an early stage, Joseph Juran came to participate in our activities. The cooperation with him was very important for the development of the company. His colleagues, Frank Gryna and Blau Godfrey, also came to Sweden numerous times for lecturing. The first presentation of Six Sigma in Sweden was made by Godfrey 1999 and arranged by us.

At the beginning of my career, inspection was a substantial part of the quality related work (see Chapter 10). Therefore, questions concerning inspection effectiveness came to interest me. In a book with the title, "Human Factors in Quality Assurance", published in 1969, the Americans, Douglas Harris and Frederick Chaney discussed this subject in an orderly manner. Consequently in 1972, I invited Harris to Sweden to give a seminar with the same title.

Early on the Japanese development was of great interest to me. Through my membership in the International Academy for Quality (IAQ), it was easy for me to invite leading Japanese experts. The first was Yoshio Kondo in 1981. Later, Kaoru Ishikawa and Noriaki Kano came to Sweden. The Japanese contacts are dealt with in greater detail in Chapter 7.

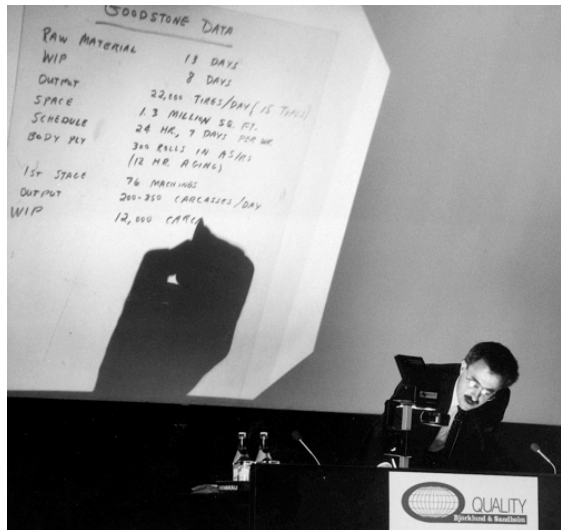
Through the Japanese successes (not just with respect to quality, but also productivity), interest increased in what was being done in Japanese industry. A production philosophy that got attention was, "Just-in-Time". This was used to improve productivity and capacity utilization. The best known expert in this field in the USA was Richard Schonberger. He conducted seminars and wrote a great deal on the subject. His book, "The Japanese Manufacturing Techniques: Nine Hidden Lessons in Simplicity" was the most sold book on production in the USA. As the subject was related to quality, it was natural to invite Schonberger to lead a seminar in Stockholm. He accepted the invitation and conducted a two-day seminar in 1987. The seminar was also given in 1988. The documentation included his then recent book "World Class Manufacturing. The Lessons of Simplicity Applied".

Just-in-Time was actually the beginning of "Lean", a concept that nowadays is of immediate interest. Schonberger became a leading expert in this context. It was with great pleasure that we had him as a lecturer at our anniversary conference in May 2011.

TRAINING MAKES BETTER BUSINESS RESULTS



Contacts with the experts became very personal, often being together outside working-hours. Here sailing in the Stockholm Archipelago with Blair Godfrey and his wife Judy.



Richard Schonberger lectured on Just-In-Time in Stockholm in 1987.

TRAINING MAKES BETTER BUSINESS RESULTS

In the middle of the 1990's the interest in management systems according to ISO 9000 increased. To offer training in this area we invited Alan Hurley and Brian Tilley from the United Kingdom to conduct a five-day course for quality auditors entitled, "The Assessment of Quality Management Systems (ISO 9000)" in 1994. They were associated with David Hutchins International, a consulting company that I came to know well, as it was the Juran Institute's representative in the United Kingdom. The course was approved by the Institute of Quality Assurance in the United Kingdom. The training ended with an examination, which by passing led to a certification by The Registration Board for Assessors in Great Britain. For those who wished, the examination could be taken in the Swedish language since we translated the assignments, as well as the answers.

Included in the training was an extensive case study with role-playing. The training was very popular and thus given over several years. It was also carried out as an in-house training at Swedac, the Swedish authority accrediting certification organizations. The Director General attended the training and passed the examination.



Brian Tilley and Alan Hurley marking the examination of the course "The Assessment of Quality Management Systems (ISO 9000)".

THE QUALITY MANAGER'S WIDER ROLE CALLED FOR NEW COMPETENCE

From the end of the 1980's a change of leadership for quality took place. There was a shift in emphasis from technical issues to management issues, from a narrow focus to a business perspective with a large range, from inspection to strategic business planning, from an inward-looking approach to an understanding of the surrounding world, from dealing with defect rates to working for total customer satisfaction, profitability and cost-effectiveness. The widened tasks and the growing view of quality as a strategic issue of great importance for company results, meant that a completely different competence was necessary for quality managers than was previously the case. This was the reason that Björklund & Sandholm initiated in 1989 a training program for Quality Managers.

At the end of the 1980's, Samhall gave us a large assignment (see below). Everybody would be trained in quality. The assignment included training of the quality managers as well. We had long recognized that there was a need for a sound training of Quality Managers. Many people who received the job as Quality Manager (like me in 1961) had to find out how the task would be carried out in the best possible way. We were now able to introduce such a training program for Samhall. It was a training course with a length of 20 days. The course evaluation was very positive, so we went on to launch a public Quality Manager Course in 1991. Since then, over 900 people have completed the training.

From the start, the training course was developed concurrently with the development of the quality profession. The course gives the participants a deep understanding of modern quality management principles and how to achieve good results. Several competent guest speakers have always been involved. One of them is the former CEO and Chairman of SKF, Mauritz Sahlin. Over the course of time, the course has been considered as a standard for Quality Managers' competence in Sweden. Many companies and other organizations (including hospitals, authorities, and municipalities) make regular use of the course in providing training for new Quality Managers.

TRAINING MAKES BETTER BUSINESS RESULTS



The first public Quality Manager Course was held in 1991.

A. Business development with a focus on total quality

Quality. The company and quality. Customer focus. Profitability and quality. The development of the quality profession. Coordination and planning for quality. Strategies for quality. Quality policy. Quality objectives. Quality management systems.

B. Quality in various company functions

Services. Development of goods and services. Quality function deployment (QFD). Vendor relations. Processes. Quality requirements. Statistical methodology.

C. Information and evaluations

Quality data feedback. Quality auditing. Benchmarking. Business evaluation. Quality award models. Inspection and testing. Computers in quality.

D. Business improvement and leadership

Economy of quality. Balanced score card. Improvements. Six Sigma. Lean. Involvement and participation. Change by training. Quality motivation. Upper management and quality. Organizing for quality. Strategic business planning.

The content of the Quality Manager Course has been developed concurrently with the development of the quality profession.

STUDY AND WORK MATERIAL FOR CONTINUOUS IMPROVEMENT

As already mentioned, Björklund & Sandholm received the assignment to carry out a massive quality training for Samhall in 1989 (see below). The mission was also to carry out a broad-based training effort. In our view, an effective training of this kind could not be conducted by external consultants or instructors. The reason is that they would not be sufficiently familiar with the organization's culture and internal conditions. It would be difficult for them to go into down-to-earth matters raised by participants. Therefore, it was important that this kind of training be conducted by competent personnel from the organization itself. These instructors would need support in their role. Hence, we developed a training package containing a workbook for the participants, as well as an instructor's manual, visual aids, video cassettes, and reference literature. All of this is placed in a case. The training package was called, "Towards Zero Defects!". We trained the instructors in how they should carry out the training sessions and how they could include instructive examples from activities within the organization.



The training package "Towards Zero Defects!" included work book, instructor's manual, visual aides, video cassettes, and reference literature, all placed in a case.

TRAINING MAKES BETTER BUSINESS RESULTS



The in Sweden well-known actor, Lars Amble, acted both as a supervisor and as a production operator on the factory floor in a video included in the training material, "Towards Zero Defects!".

There were many companies using "Towards Zero Defects! ", among them were ABB, Absolut Vodka, Edsbyverken, Electrolux, SCA, SKEGA, and Uddeholm. Some years after the launching, we invited the users to a round-table discussion to learn more about their experiences and to get suggestions for improving the material. The general opinion was that the material was good, but too extensive. Together, we concluded that the training should result in concrete improvement actions. During the course of training, the participants should be encouraged to find opportunities for improvement and to carry through with distinct improvement projects.

Based on the comments received, the training material was revised. Moreover, the name was changed to, "Focus on Quality - Continuous Improvement". The content became:

1. What is quality for us?
2. How do people influence quality?
3. How do we manufacture products of good quality?
4. How do we get information about quality?
5. How do we improve quality?

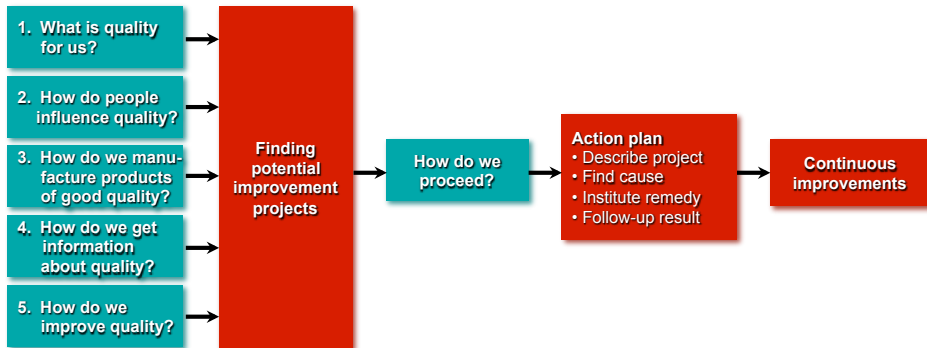
Appendix A. Project work

Appendix B. Improvement tools

Appendix C. National Quality Award

For each section, the participants had to identify potential improvement projects, on the basis of questionnaires. During the course of the training, one project was selected and pursued in order to achieve cause and remedy. After the completion of the training, the participants continued to work further on more improvement projects. The structure is shown in the following diagram.

TRAINING MAKES BETTER BUSINESS RESULTS



Structure of the improvement program "Focus on Quality - Continuous improvement".

The modified training package was favorably received. A contributory cause was that versions adapted to the various sectors were provided - manufacturing, services, health care, primary health care, and municipal activities (see Chapter 11). There were also versions in the Danish, Norwegian, English, and Chinese languages.

The study and work material would be flexible for the users. An adjustment to the organization's specific needs could easily be made. This could apply to content, packaging, name, implementation, and delivery.



The study and work material "Total Service Quality".

IMPROVEMENT WORK BY SIX SIGMA IS BASED ON SOLID KNOWLEDGE

Motorola's success with their improvement project, Six Sigma, eventually received a great deal of attention outside the company. Interest in Six Sigma increased, not least in that General Electric's CEO, John Welch, started a very ambitious program for improvements through Six Sigma in 1995. The program led to excellent results and received a lot of publicity. More and more US companies started to apply the concept.



The interest in Six Sigma had also an influence on Dilbert.

Through our cooperation with Juran Institute we had an early understanding of Six Sigma. The first activity for us was to arrange a seminar conducted by Blan Godfrey from Juran Institute in November 1999. Philosophy, approach, methodology, and practical experience in US companies were presented and discussed. This was the first time an introduction to Six Sigma was made in Sweden.

Six Sigma is a structured improvement work in project form based on facts. For each improvement project, a project team is established with the appropriate competence. The teams are supported by Black Belts. They must have a good knowledge of improvement methodology with statistical tools as an important component.

At an early stage, the training of Black Belts was based on a length of 20 days and an improvement project had to be carried out during the course of the training. We followed this approach in the training that we introduced in 2000. The first course attracted only six participants.

TRAINING MAKES BETTER BUSINESS RESULTS



The first batch of Black Belts trained in 2000-2001 together with Jörgen and Lars.

However, interest in Six Sigma increased quickly. Already in the training catalogue for 2001/2002, we could offer a more complete program for Six Sigma. It included six components:

- Inspiration seminar on Six Sigma
(half day)
- Top management and Six Sigma
(one day)
- Six Sigma for responsible managers (Champions)
(6 days)
- Training of Black Belts
(20 days)
- Training of Master Black Belts
(20+20 days)
- Training of Green Belts
(coach training 2 days)

The training of Master Black Belts covered both the Quality Manager training course and the Black Belt training course.

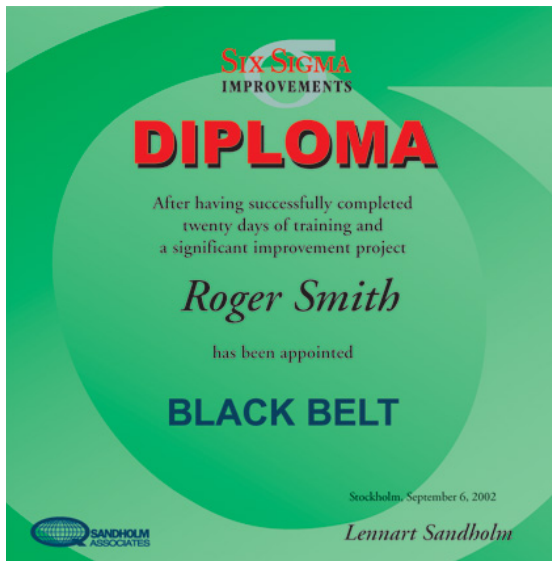
For the training of Green Belts, a study and work material was developed. The aim of this was to carry out the training in direct connection with the first improvement project. The material included a workbook for the participants and an instructor's package comprising

TRAINING MAKES BETTER BUSINESS RESULTS

documentation and training of instructors. Later, further training courses in Six Sigma were added. Our activities in Six Sigma were very successful and gave us a leading position in this field in Sweden. In particular, the training of Black Belts was a major success. From the start in 2000 about 1000 persons have been trained and received the Black Belt diploma.

Completed as a part of the training, improvement projects generated, on the average, economic savings of 4 to 5 times more than the total cost of the project and the training. A normal result was 5 to 10 times the cost. In some cases, the cost savings were 100 times the cost. In 2003 we began to describe interesting projects in the newsletter, Potential. With the increased interest in Lean, we introduced training in this field as well.

In order to stimulate the interest in Six Sigma, we took the initiative to hold an annual conference. The first conference was organized in 2002 in cooperation with SIQ (Swedish Institute for Quality). One of the speakers was John Maar, Director of Six Sigma, Motorola University in Chicago. Among the speakers at subsequent conferences were Chuck Aubrey, Harvey Dershin, Tom Johnstone, Noriaki Kano, Richard Schonberger, Greg Watson, and Leif Östling. Nowadays, Lean is also included in the program. For many years now, the conferences are held in cooperation with the Royal Institute of Technology.



Completion of training and a successfully implemented improvement project gave a diploma as Black Belt.

IN-HOUSE TRAINING IS THE KEY TO SUCCESS

In order for an organization to be successful in the area of quality, everybody has to be involved in an effective way. This means a continuous development of staff in areas that are important in this context. For this the organization's training function has an important task. Training must be tailored to the organization's situation and needs.

The internal training has two aims. Firstly, to give the staff knowledge in areas that affect quality of goods and services; secondly, to increase everyone's quality motivation. In order to obtain real change, the training must start at the top management level. Each manager and supervisor must be trained before his/her staff. It is important to start with the executives.

According to our experience, we found it appropriate to divide the training into four components:

- Top management seminars
- Workshops
- Specialist training
- Broadly based training



*Training in quality through the entire organization.
The training starts at the top of the pyramid.*

Usually, the top management seminars had a length of one day. The aim was to give top management an understanding of how a hands-on leadership with a focus on quality could improve effectiveness and profitability.

TRAINING MAKES BETTER BUSINESS RESULTS

The workshops were intended for managers and other personnel in key positions. In addition to providing insights and knowledge of quality, the aim was to initiate changes leading to better business results. The workshops usually had a duration of two or three days and were held at a conference hotel. The participants received solid documentation adapted to the organization in question.



Documentation for in-house workshops.

The target groups for specialist training were personnel in various specialist functions (product development/design, purchasing, production, marketing, quality, etc.). Factors of importance to the specific function were discussed. The aim was that the participants would be able to introduce methods for improving quality in their own function, after the training.

The broadly based training was directed to other personnel. These would get a good understanding of the importance of quality to the business results. After the completion of the training, they would be able to carry out improvements in their own place of work. Björklund & Sandholm developed study and work material supporting this training (see above).

A company that realized the importance of training their staff in quality was Samhall. A large project called "Quality for the 90's" was launched in 1989. The aim was to achieve a uniform approach to quality in the whole company. A key component in achieving this was to train the entire staff. Björklund & Sandholm was assigned the task to carry out the training. The company, being active throughout the whole of Sweden, employed individuals with a handicap that prevented employment on the regular labor market. According to our recommendation the training started at the top of the organization and then continued downwards, level by level.

TRAINING MAKES BETTER BUSINESS RESULTS

The assignment for Samhall, provided us with the opportunity to develop and test two new training programs. One was a training program for quality managers which we launched as a public training course in 1991 (see above). The other was a broadly based training offered to companies and other organizations to be carried out by the help of internal instructors (also see above).

- **Group executives and CEOs of regional companies**
1 day
- **Regional executives**
2 days
- **Quality managers**
25 days
- **Plant managers**
5 days
- **Technicians**
3 days
- **Purchasers**
3 days
- **Supervisors**
4 days
- **Instructors**
2 days
- **Other personnel**
1 day

Samhall's quality training program being a part of "Quality for the 90's".

As mentioned in Chapter 2, public organizations began to become interested in quality development in the 1990's. This led to many assignments for us in this sector. Not at least of which was in the healthcare sector, which is mostly public in Sweden. This sector is dealt with in Chapter 4.

Other public organizations that turned to us for assistance were city governments (as Stockholm and Gothenburg), the National Defense, and other governmental organizations.

Upplysningar

2-dagars kurs

Syfte Kursen avser att ge en systemlärare och detaljerad information om hur kvalitetskontrollarbetet skall planeras och bedrivas. Både etyrdade och avsejdlade kvalitetskontroll behandlas.

Deltagare Kontrollchefar, kontrollingenjörer, produktionsberedare och andra personer med behov av kunskaper i kvalitetskontroll.

Föreläsare Tekn. Iek. Lennart Sandholm, Björklund & Sandholm.
Ingenjör Marne Terelius, Björklund & Sandholm.

Lokal Ingenjörshuset, Malmisalladagatan 48, Stockholm

Anmälan Anmälan erkst enklast genom att fylla i och sända in anmälningsblanketten. Söta anmälningsdag 30 november. Delagarantalat är begränsat med häyn till gruppbetäring. Vi bekräftar skriftligt mottagna anmälningar.

Dokumentation Kurskompendium och boken "KVALITET. Begrepp, ekonomi och teknik" i Lennart Sandholm utödelas.

Kursavgift Kronor 675 —. I kursavgiften ingår dokumentation, lunch, förmiddag, och eftermiddagskaffa.

Betalning Efter genomförd kurs sänder vi en faktura på kursavgiften.

Upplysningar Ytterligare upplysningar om kursen erhålls genom Lennart Sandholm eller Marne Terelius.

Kontrollverket

Planering och beredning av kvalitetskontrollarbetet

STOCKHOLM
INGENJÖRSHUSET
6—7 december 1972

Björklund & Sandholm

Rägräning och utbildning i teknisk utbildning och kvalitetskontroll.

Postadress: Box 400 98, 103 42 STOCKHOLM 40
Kontor: INGENJÖRSHUSET, Malmisalladagatan 48 A
Telefon: 08-14 20 00 (växel)
08-20 01 50 (efter betäring)

Kontrollberedningen har avgörande betydelse för ett ekonomiskt och effektivt kvalitetskontrollarbete. Trots detta har lämplig litteratur och utbildning inom området saknats. Det är mot denna bakgrund som vi presenterar denna kurs.

I kontrollberedningen ingår

- att välja kontrollform för olika arbetsoperationer
- att inplanera och utforma kontrollstationer
- att utarbeta instruktioner för kontrollverksamheten (omfattande kontrollerade egenskaper, kontrollmetoder och kontrollutrustning)
- att anskaffa kontrollutrustning.

Härvid måste man ta hänsyn till risken att felaktiga enheter upptäcks samt följderna av att felaktiga enheter går vidare till efterföljande operationer eller till kunderna. Efterrätt måste kontroll och fel medför kostnader

Första dagen	
9.00 – 9.15	Registrering av deltagare.
9.15 – 12.00	<p>Prezentation av kursen, dess syfte och arbetsformer.</p> <p>Kvalitetsvetenskap i samband med utveckling av nya produkter.</p> <p>Total kvalitetsledning. Kvalitetssystem. En produkt framtagnings- och livscykels. Kvalitetsledning.</p> <p>Grundläggande. Kvalitetsvetenskap. En produkt framtagnings- och livscykels. Kvalitetsledning. Organisation.</p> <p>Grundläggande i statistik kvalitetsvetenskap.</p> <p>Ämnen som konferensprogrammet.</p> <p>Uppgifter. Skriftliga meddelanden. Underlag för diskussion. Föreläsningar. Samarbete. Beredning av mottagningskonferens, tillverkningskonferens, auktoriserad kvalitetsledning.</p> <p>Uppgiftsplan för kvalitetsvetenskapens.</p> <p>Föreläsningar.</p>
12.00 – 13.00	Grupparbete.
13.00 – 17.00	<p>Grupparbete.</p> <p>Föreläsningar.</p> <p>En produkt framtagnings- och livscykels.</p>

är det viktigt att man vid kontrollberedningen gör en ekonomisk avvägning.

I kursen behandlas hur man upprättar planer för kontrollaktiviteternas inplacering i tillverkningsförloppet samt hur instruktioner för mottagningskontroll, tillverkningskontroll, slutkontroll och kvalitetsbedömning bör utformas och utarbetas. Instruktioner och kontrollprogram för slutskottkontroll (felantalskontroll) och varuslagkontroll behandlas.

För att förbättra utbytet för kursdeltagarna har tillämpningsföreläsningar i form av grupparbete inlagts. För dessa övningar finns fullständigt tekniskt underlag samt skädningsmaterial. En del av detta har välviljigt ställts till förfogande av AB Electrolux.

Ansvarig för innehållet i kursen är tekn. lic. Lennart Sandholm.

Early in this venture, I found it advantageous to present all courses and seminars in a booklet. This was the beginning of the training catalogues which in time became quite extensive. Usually, one catalogue for the spring offerings and one for the fall offerings were published each year.



Some training catalogues.

The idea of a newsletter to help strengthen the marketing was conceived in 1994. This would include interviews with clients. Since then, two newsletters were published annually, one in January and one in August. At an early stage, the title of the newsletter was Quality. As we became aware that the word "quality" was becoming more and more worn we found it appropriate to change the name. Since we claimed often that each organization had a potential to become better, we changed the name of the newsletter to Potential. The change took place in 2003.

TRAINING MAKES BETTER BUSINESS RESULTS

The Black Belt training courses gave Potential regular and readable contributions, since reports on improvement projects carried out as a part of the training were published. Since 2003 each issue of Potential contains reports of this kind. The printed version of Potential was supplemented by a digital version in 2005.



The newsletter was named Quality (in Swedish Kvalitet), but later changed to Potential.

In the 1990's, there was a breakthrough for Internet. It was obvious to us to use this opportunity to provide information on our activities. The first website was launched in 1997

(www.sandholm.se). It replaced the printed training catalogue in 2002. This was a significant cost saving.

A different form of marketing was to arrange Open House. The first time was in 1994. Open House was then held only in Stockholm. Later it was expanded to other cities as well. The program always included introductions to current topics and information on training offerings. In addition, literature and training materials were exhibited. Of course, these arrangements were free of charge.

An important way of marketing was to give presentations at national and international conferences. I did this right from the start of my consultancy career. The same applied to the publication of books, as well as articles in journals and magazines. These forms of marketing are still used by an active participation of Lars.

A good way for the company to demonstrate its competence was to organize conferences in which current themes were dealt with in a meaningful and attractive manner. As mentioned in Chapter 2, we did this already in 1989 when we arranged the conference, "World Class Quality", together with the National Committee for Swedish Quality, the Swedish Employers' Confederation, the Royal Swedish Academy of Engineering Sciences and MGruppen.

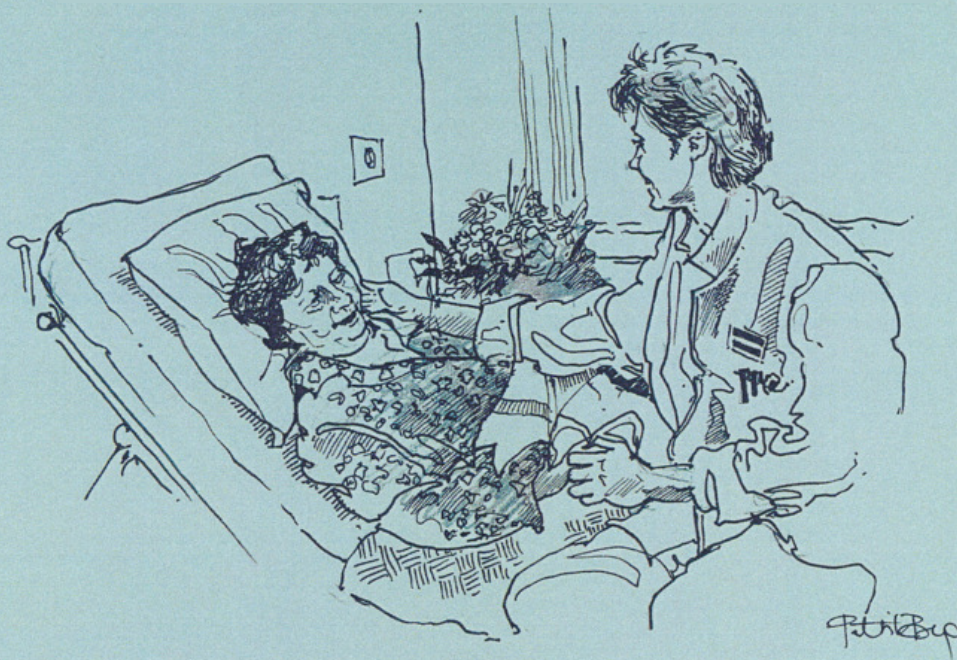
Through my involvement as Adjunct Professor at the Royal Institute of Technology our company began organizing conferences in cooperation with the Institute. More on this in Chapter 9.



In connection with conferences on quality we usually had an exhibition booth.

Total Quality in Healthcare

WORKBOOK



DANDERYDS SJUKHUS
KVALITET och ÖMTÄNK

Our study and work material "Total Quality in Healthcare" was adapted to the needs of Danderyd Hospital.

HEALTHCARE BECAME AN INTERESTING CHALLENGE

DANDERYD HOSPITAL TOOK THE LEAD

In the fall of 1992, I received a telephone call from the Stockholm County Council⁶. They were aware of my long experience in how industrial companies worked with quality. Therefore they asked me to visit them to discuss quality issues. They presumed that the healthcare services could learn from industry. I went there, not only once but twice.

It was decided that two hospitals would be evaluated to determine how they could be improved. No hospital would be singled out. Instead, all hospitals would be invited and the County Council would bear the cost. Two hospitals announced an interest - Danderyd Hospital and Karolinska Hospital.

The County Council proceeded to procure bids for the two evaluations. We entered a bid for Danderyd Hospital. The bid was prepared together with the Juran Institute. They had previous experience in working with healthcare in the USA. One of their consultants, Harvey Dershin, came to Sweden as the bid was being prepared. Dershin was previously the General Manager of a hospital in Chicago. The County Council gave us the assignment.

The assignment was carried out as follows:

1. Planning

The evaluation was mainly based on interviews with staff members of selected areas. These were selected in collaboration with the Hospital's General Manager, Lars Lindberg, and Chief Medical Officer, Magna Andreen Sachs, who was also the Chair of the Hospital's Quality Council.. They provided very positive involvement in our evaluation work.

⁶ The Stockholm County Council is one of Europe's largest healthcare providers. Most of the healthcare in Sweden is publicly financed and provided by County Councils.

2. Seminars

All personnel in key positions, as well as those who were going to be interviewed (a total of 400 people, divided up into four groups), participated in a three hour seminar. At the seminar, Dershin and I presented what leading organizations did in the area of quality, and included examples of quality development in hospitals in the USA.

3. Collecting information and evaluation

During two weeks in March of 1993, Dershin and I interviewed top management, department heads, doctors, nurses, and administrators in selected areas. In total, around 50 people were interviewed. We were well received and told many times that our mission was welcomed. We made a daily summary and evaluation. In this way, we were able to present a written preliminary report with oral comments to top management on the last day.

4. Seminar "Making quality happen"

Dershin and I conducted a two-day seminar on quality and leadership in April 1993 for top management, department heads, and quality coordinators. The topics covered were: introduction with definitions, quality improvement, quality planning, quality control, strategic quality management, benchmarking, and implementation. The seminar was identical to Joseph Juran's seminar having the same name, but adapted to healthcare.

5. Workshop "Strategic quality planning"

A two-day workshop in May 1993 was attended by top management and department heads. The content included: introduction to strategic quality planning, vision, key strategies, strategic quality goals, and deployment. Group assignments were included covering: personal values, vision for the Hospital, strategies for achieving the vision, meeting the criteria of the Swedish Quality Award, and quality improvement projects. Several proposals on quality development were presented by the participants.

5. Final report

Based on the outcome of the interviews and workshop, Dershin and I prepared a final report which was submitted to top management and the County Council in August 1993.

The conclusion in our report was that the work was in good order on the individual level. The personnel did a good job. However, there was obviously a lack of leadership. This applied to all levels within the Hospital as well as the County Council..

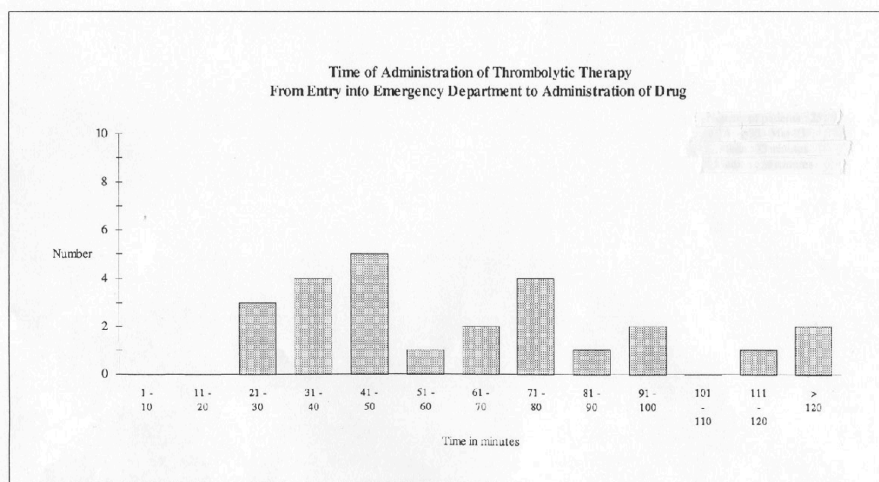
To strengthen the leadership, we identified the following areas for further development: vision, quality policy, quality objectives, quality system, quality organization. We also emphasized training, process orientation, information feedback, and quality improvements.

HEALTHCARE BECAME AN INTERESTING CHALLENGE

In our report, we suggested that a quality department should be established. This was implemented. Jutta Askergrén, Chief Physician in the Surgery Department, was appointed head of the new department. Jutta was the first doctor to attend our Quality Manager Course.

Activities related to heart attacks was an area studied. We questioned a cardiologist about the time period from a patient's arrival at the emergency room to thrombolytic therapy. This procedure was a vital clot dissolving treatment. The answer was 20 minutes. We asked him to obtain actual factual data for the latest 25 patients. On the following day we received the data and prepared a histogram.

The histogram showed that the time for all patients exceeded what the doctor had stated. For many patients it took more than one hour. As the risk of death has a clear connection with the time to the thrombolytic therapy, the current outcome was not satisfactory.



Histogram showing the time from the patient's arrival to the emergency room to thrombolytic therapy.

The Manager of the Heart Department, Nina Rehnqvist (later the Deputy Director General of the National Board of Health and Welfare and the Director General of the Swedish

Council on Health Technology Assessment) reacted strongly to the histogram. After some brief training, the personnel concerned made an analysis of the process for heart attacks with the help of flow charts. The analysis resulted in a lot of changes for shortening the time to thrombolytic therapy.

A few years later, it was a great pleasure to read in the leading Swedish morning paper, Dagens Nyheter (Today's News), the result of a study on how different hospitals managed to treat heart attacks. Danderyd Hospital was the next best in the country, when it came to the survival of patients. The study was carried out by the National Board of Health and Welfare.

Warmhearted joy at Danderyd

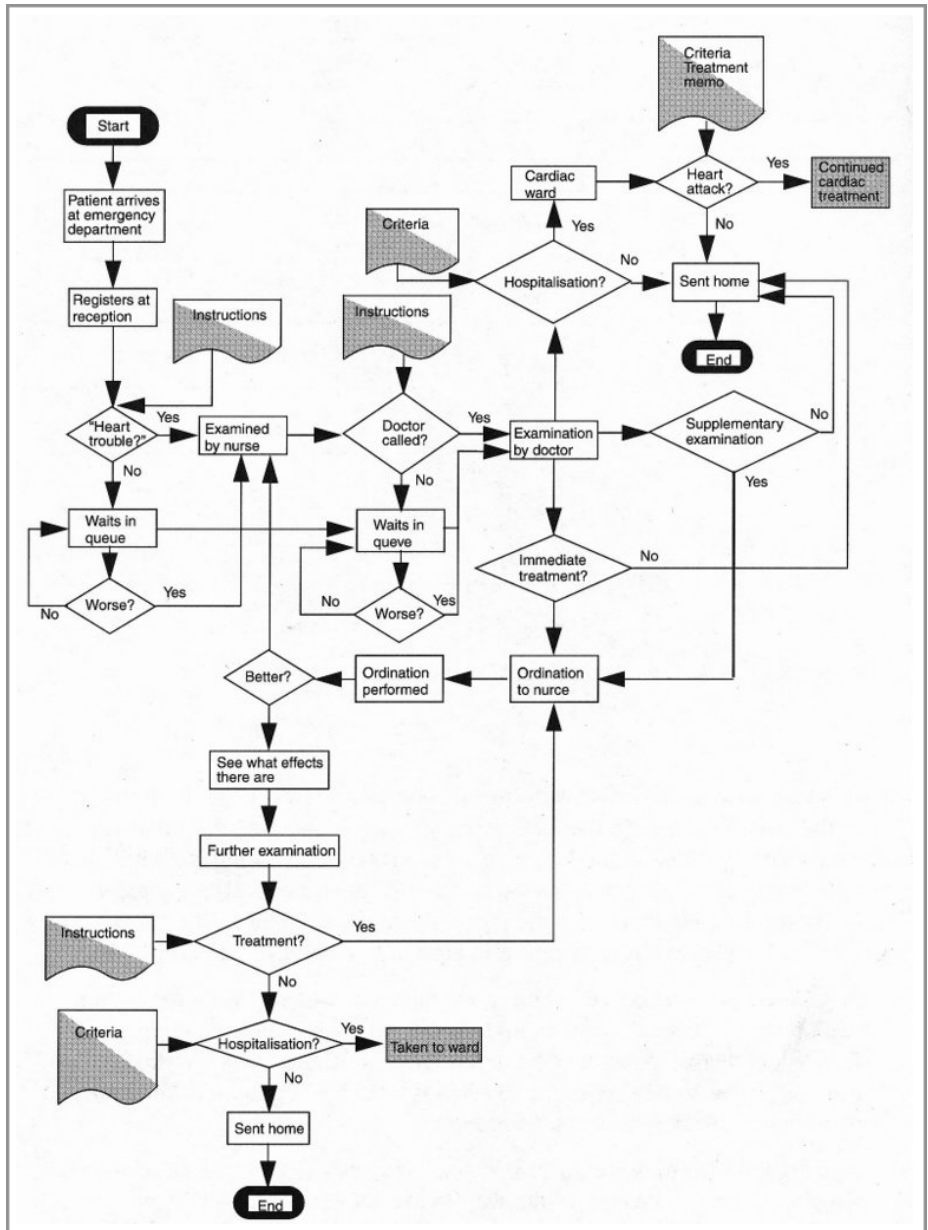
Fine numbers. The Hospital manages heart patients, ranked second best in the country

As DN told us yesterday, the National Board of Health and Welfare examined what occurred with 75,000 patients who received care for acute cardiac infarction in 89 Swedish hospitals, 1992-1994. The investigation showed, among other things, that the survival rate at Danderyd Hospital is the second highest in the country.

Dagens Nyheter, October 26, 1996.

A modern approach to quality was fairly unusual in the healthcare sector when we did the study of Danderyd Hospital. I remember very well the interview with one of the more important department managers. He had prepared for the interview by setting up a large table containing scientific dissertations that his department had produced. With a sweeping arm gesture he explained that this was quality. It is true that this was an element of quality. But on our question of the outcome of the work with patients, he had difficulty in responding.

HEALTHCARE BECAME AN INTERESTING CHALLENGE



Flow chart for the process of heart attacks at Danderyd Hospital (Lennart Forslund).

HEALTHCARE BECAME AN INTERESTING CHALLENGE

The top management team thoroughly considered the content of our report. To obtain good ideas for a successful development, they wanted to make a fact-finding visit to the USA. With the support of the Juran Institute, I prepared a week-long program that included visits to hospitals that had being successful in their quality development. A discussion led by the Juran Institute's head, Blan Godfrey, completed the week. During our discussion there was a knock on the door. In came Joseph Juran with the words, "Don't let me disturb you. Continue your talk, please!". Of course, the meeting with him was a high point for the study group from Danderyd Hospital.



The top management team of Danderyd Hospital together with Joseph Juran at the Juran Institute's office at Wilton, Connecticut in November 1992.



Dr. Magna Andreen Sachs in a glad discussion with Joseph Juran.

The management of Danderyd Hospital realized that a key role for a successful quality improvement program was held by doctors and supervisory personnel. The attitudes and knowledge of these categories were crucial for the outcome. Consequently, we were given an assignment to carry out a training program. Approximately 500 persons were given a compulsory training for two days, carried out in groups of 25 people each time. In addition to providing insights and knowledge of quality, the aim was to initiate changes in the operations, leading to better results.

Initially, I met some resistance from some doctors. One doctor asked if I could give them anything about quality, using an industrial language. I should speak their language, i.e., a medical language. What could I say to that? I quickly found myself and wrote a few names of organization on a flip-chart: ABB, Ericsson, Aftonbladet, Sandvik, Swedish Defense, Danderyd Hospital. These organizations represented both goods and services. Then I raised the question as to whether there were any similarities between these various organizations. The discussion resulted in five similarities:

- Similarity 1: Aim of the the work

Each organization exists to serve others (depending on the type of activities called customers, patients, citizens, students, etc.), as well as to give them something (in some cases goods, in other cases services or a combination of goods and services).

- Similarity 2: Conditions in the organization

In each organization there are working people belonging to different organizational units (departments, divisions, clinics, groups, etc.). In these units intended beneficial activities are being carried out.

- Similarity 3: Consequences of present conditions

Often, there is a lack of coordination of these ongoing activities. This might be due to unclear responsibilities and authorities.

- Similarity 4: Improvement potential

The conditions can lead to errors and deficiencies. Hence, there is a potential for improvements in at least two areas. The first is what the activity accomplishes and the other is how the activity is conducted.

- Similarity 5: Lack of leadership

In many organizations, the improvement potential is neglected due to lack of leadership.

Then I explained that the focus of the training was on leadership which had its own language. In principle, there was no difference whether the training was carried out at ABB or Danderyd Hospital.

After the training at Danderyd Hospital, I was invited to many other hospitals to lecture on quality. In all these cases I started with a discussion of the five similarities and the language of leadership. In this way, I could avoid any doubts that might initially exist among doctors.

At a training session at Danderyd Hospital, I observed two senior physicians sitting at the very back of the room and talking a lot. An experienced lecturer can easily observe lack of attention. A couple of times they asked provocative questions, which were, however, easy to answer. When I discussed the cost of poor quality, I asked the audience about their view on the magnitude of this cost in relation to the turnover - 1, 5, 10, 20 per cent. According to one of the physicians, the question was stupid. I replied that if the actual situation was x per cent, a good reason to find out was to aim for a cost reduction, possibly a 50 per cent reduction in three years, i.e. down by $x/2$ percentage points. On my question to the senior physician what he would recommend to reach this reduction, he was silent. At my urgent request, he suggested a vague measure to be taken. My comment was that I hoped that he didn't deal with his patients in the same manner. Cost of poor quality at x per cent was a symptom that the hospital had a problem. First of all, a diagnosis would have to be made (that is to find the cause). Then a solution would have to be made (that is to take a corrective measure). But the physician had gone directly from symptom to treatment without any diagnosis. Then the two senior physicians became silent for the rest of the training.

I gladly remember another senior physician. He sat in the front row and was mainly looking out through the windows during the first lecture hour. However, I found that he gradually turned his attention to me and stopped observing the park outside. Instead, he appeared to pay full attention to my lecturing. When we finished the second day, he came up to me with his training evaluation. This showed marks at the top most part of evaluation scales. He thanked me for the training and said that it had opened his eyes when it came to quality. Such a response is heartwarming indeed.

After the training of doctors and supervisory personnel, a broadly based training was carried out by means of our study and work material, "Total Quality in Healthcare".

OTHER HOSPITALS FOLLOWED

Since Lars Lindberg moved from being the General Manager of Danderyd Hospital to become the General Manager of Umeå University Hospital, he asked me to come to his new location to make a similar study as was done at Danderyd Hospital. Lindberg thought that the situation was similar. His thoughts were confirmed by my analysis of selected areas.

Unexpectedly, a gentleman phoned me and presented himself as "Lund in Lund". His name was Björn Lundh and he told me that he had become QUL⁷ coordinator at Lund University Hospital. He wanted me to come to the Hospital to give some seminars on QUL for the heads of the clinical departments, many of them holding a professorship. I responded that I would like to come, but that I wanted to talk about quality instead of QUL. Lundh had nothing against it and asked me to send him a proposed program content, which I did. A few days later I received a copy of the invitation that went out to the participants. The content differed a lot from my proposal, a lot on QUL had been added. Of course, I called Lundh and pointed this out to him. He said that I was free to say what I wished.

I went to the Hospital and made a presentation with a clear focus on effective improvement work. I strongly warned against a QUL evaluation which would simply be a waste of time. The message caused the seminar participants to beam with satisfaction. They had been imposed by the County Council to invest in quality by getting their staff to make an evaluation by means of checklists based on the criteria for the Quality Award QUL. This was felt to be meaningless, and indeed, it was their concern that the time should be given to patients. The reaction to my view on QUL was very positive. One additional seminar was held, with the same positive response.

After the seminars, I held a two-day workshop with the Hospital's top management team. As a consequence of the seminars conducted for the heads of the clinical departments being so well received, top management decided that the Hospital would adapt my ideas to

⁷ QUL stands for "Qualitet Utveckling Ledarskap" (in English "Quality Development Leadership") which was the name of an award for hospitals developed by the Federation of County Councils and based on the Swedish Quality Award (similar to the Malcolm Baldrige National Quality Award). QUL included a methodology for the evaluation of the operations. Some hospitals took in QUL. It meant that the first activity was to carry out an evaluation based on QUL criteria, that demanded a great deal of work. Thus a comprehensive training in the criteria was carried out. After that, extensive resources were devoted to an activity description with the following evaluation. When the evaluation findings were there (which was after a half or even after a full year from the start) and it was time to get to work on improvements on the evaluation results, in many cases the commitment slowed down considerably. The outcome was disappointing. Instead, after a few days' study of the operations, a structured improvement work should be started. In a debate article with the title "QUL doesn't lead to improvements" in the Swedish healthcare magazine Today's Medicine, I criticized the QUL activities going on in many hospitals. The article became well received by personnel in the healthcare area.

achieve better quality. After the workshop, several assignments at the Hospital followed. Our training package "Total Quality in Healthcare" was used as well.

An interesting assignment at the Lund University Hospital was to study the activities at the Central Operating Department for general surgery, orthopedics and urology, and make a proposal for better use of the resources. Often there were cancellations of patients who had been called for operations. This was troublesome, not only for the patients, but also for the personnel. This was the background to my assignment. Initially, in April 2000, I interviewed 40 people of different categories in relevant areas. Based on these interviews and data collected, I prepared a report. My report showed that there was a good potential for improvements in both the satisfaction of patients and the use of the resources. Primarily, there were three areas where efforts were needed. The first area was leadership. A clear and coherent approach to the activities should be carried out by everyone. The second area was how the work was carried out in practice. This required a process orientation of the activities. The third area was the introduction of a data feedback system that enabled continuous control and improvement of the work. The proposals were well received.

Many other hospitals invited me, primarily to conduct seminars and workshops. I found these assignments to be very interesting, as they clearly led to a change of attitudes resulting in improved quality.

An unforgettable incident occurred when I led a seminar for the management of a hospital in the north of Sweden. Half-an-hour after my start, a tall gentleman with a white coat entered and sat down at the back of the room. He immediately stretched himself out on the chair in a provocative way and pretended to doze off. What does a seminar leader do then? With the long experience I had achieved in lecturing for doctors, I was not afraid to ask him in a sharp tone to leave the seminar since his behavior was disruptive to his colleagues. "Close the door from outside!" was my clear request. The other participants were startled. The female Chief Doctor thought that the man, who turned out to be the Chief Gynecologist, would stay as he used to behave in this way. He stayed and the provocative behavior stopped. In the following break, the doctor came up to me and thanked me for my behavior towards him. He said that he had never been dealt with in this way, a way he considered to be positive. It is with pleasure that I remember the episode. A lecturer with less experience may have had difficulty in coping with the situation.

Stockholm Care was a company set up by Stockholm County Council in order to sell health care services abroad. In the marketing of these services, I was asked to lead seminars for general managers of hospitals in St. Petersburg and some other cities in 2001. It was an exciting task.

HEALTHCARE BECAME AN INTERESTING CHALLENGE

In 1998, our commitment to healthcare led to an initiative for a conference with the title "Leadership in Developing Healthcare". The conference was organized in cooperation with the National Board of Health and Welfare, the Federation of County Councils and Danderyd Hospital. Many leading representatives of Swedish healthcare contributed. The Minister for Social Affairs agreed to give the opening speech. The conference strengthened the general view that our company was a leading consultancy in the development of quality in healthcare.



"Sandholm Control" became a concept in China.

WORK ALL OVER THE WORLD

STARTING IN SWEDEN WITH THE UNITED NATIONS

As described previously, my consulting career started in the Norwegian consulting company, IKO. At the time, the Swedish subsidiary of this company carried out training courses in maintenance for developing countries. The training was given on behalf of the United Nations Industrial Development Organization, UNIDO, and was financed by SIDA (the Swedish International Development Authority). This gave me the idea that there might be a need for an equivalent training in quality. Hence, I contacted UNIDO's headquarters in Vienna and SIDA on this idea. From UNIDO I received the reaction that such training had a high priority, but it didn't exist. SIDA was prepared to do the funding.

After having prepared a proposal with content and structure, I presented it in 1972 to UNIDO and SIDA. Both organizations gave a positive response and my international activities could begin. The outcome was that a comprehensive training of managers and specialists was carried out during a period of almost 30 years. The training activities ranged from one-day top management seminars to ten-week courses for quality managers. Over the years, more than 15,000 persons from about 100 countries participated. Training was given in Sweden, as well as in about 30 other countries.

At the beginning of 1973, UNIDO sent an invitation to appropriate countries. A requirement was that the applicants, in addition to an appropriate professional background, should have a good knowledge of English. Many applications were received and evaluated. Twenty applicants were selected. They started their training in Sweden the same year in August. The participants came from Afghanistan, Bangladesh, Chile, Cuba, Ecuador, Egypt, Ethiopia, Hong Kong, India, Iran, Iraq, Philippines, Singapore, Sudan, and Thailand. Hence, it covered countries in Africa, Asia and Latin America.

The first course with the title "Quality Control in Industry" had a length of nine weeks, of which seven were for theory and two were for practice in industry. An evaluation showed that the theoretical part should be extended by one week. This was also the case in the following courses. The structure was as follows:

WORK ALL OVER THE WORLD

Weeks 1-4	Theoretical part 1
Week 5	Practical part 1
Weeks 6-7	Theoretical part 2
Week 8	Practical part 2
Weeks 9-10	Theoretical part 3

The theoretical parts included lectures and assignments. Some assignments were carried out individually, some in small groups. The two weeks of practical training took place in industrial companies. In the first week of the practical training, the participants received assignments related to the application of statistical methods for process capability studies, process control and acceptance inspection. In the second week, the participants studied the total quality approach of the company that was visited. When the participants returned from the practical studies, they had to present a report on the assignments. Among the companies visited were: ACO Pharmaceuticals, Electrolux, Karlshamn Oil Company, and SAAB-SCANIA. The companies were very positive to these elements of the training, which was important for the participants. The companies assisted with competent supervision.



Course invitation in 1983.

WORK ALL OVER THE WORLD

Outline

The programme consists of three theoretical parts and two practical parts.

Week No. 1—4	Theoretical part 1 Techniques oriented
	Topics covered: — Basic concepts — Metrology — Company-wide quality — Inspection control — Statistical tools in quality control — Reliability
Week No. 5	Practical part 1 This is a practical study session in industry, where the participants, divided into small groups, will take on assignments related to topics dealt with in the previous theoretical part, e.g., process capability studies, inspection planning. They will work on these assignments with industry quality control specialists supervising and assisting.
Week No. 6—7	Theoretical part 2 Management oriented
	Topics covered: — New-product quality — Quality audit — Quality specifications — Economics of quality — Vendor activities — Quality data — Manufacture of quality — Improving quality — Customer relations
Week No. 8	Practical part 2 In this part the participants will study company-wide quality control activities in industry. The studies will be carried out in small groups. Each group will visit an enterprise, where information on policies, organization, systems, activities, etc. is obtained.
Week No. 9—10	Theoretical part 3 Management oriented
	Topics covered: — Human factors in quality control — Organization for quality — Quality policy and objectives — Getting started — Quality system — Developing countries and quality control

The content of the Theoretical Training

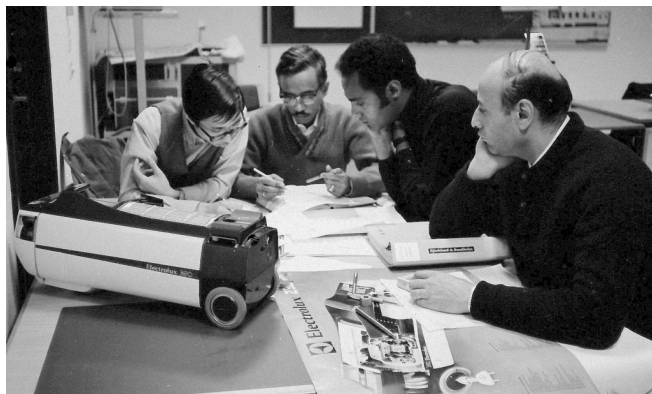
Theoretical part 1	Theoretical part 2	Theoretical part 3
Basic concepts Quality. The quality function. Terms used in quality control. Developments in quality control. Company-wide quality control Company functions affecting quality. Coordination of quality activities. Quality assurance. Life cycle of a product. Statistical tools in quality control Basic concepts. The statistical tool kit. Methods of summarizing data. Probability distributions. Process studies. Control charts. Acceptance sampling. Confidence limits. Tests of hypothesis. Design of experiments. Metrology Measurement technology. Error of measurement. Calibration control. Inspection The nature of inspection. Statistical tools in inspection. Automated inspection. Inspection accuracy. Inspection workplace. Inspection feedback. Inspection by operator. Inspection planning (generally). Planning of incoming inspection. Planning of process inspection. Planning of final inspection. Reliability Definitions, concepts and goals. Maintainability and logistic support. Life distributions and underlying failure mechanisms. Reliability prediction. Redundancy. Failure mode analysis and safety analysis. Reliability and environmental testing.	New-product quality Product phases and development programmes. Design phase. Preliminary design phase. Final design phase. Pilot production phase. Production and use phases. Management. Quality specifications Purpose and content. Setting requirements. Standards. Vendor activities Vendor-vendor relationships. Purchase documents. Vendor selection. Joint quality planning. Activities in the vendor's plant. Incoming inspection. Vendor surveillance. Vendor certification. Rejections. Manufacture of quality Manufacturing planning. Nature of process. Capable process. Capable instruments. Process control. Feedback to production. Customer relations Market quality. Field performance. Consumerism. Product liability. Guarantees. Quality audit Quality audit concept. Product quality audit. Process quality audit. Systems quality audit. Economics of quality Optimum. User's costs. Life cycle costing. Quality costs. Quality data Concepts. Paper-work tools. In-plant data. Usage data. Quality costs. Executive reports. Computers. Improving quality Concepts. Need for a programme. Identifying projects. Diagnosis. Remedy. Organizing for improvement.	Human factors in quality control Controllability. Theories of motivation. Motivational programmes. Quality motivation for managers. Training. Inspection accuracy. Inspector selection. Quality policy and objectives Quality policy. Quality objectives. Responsibility in formulating quality policy and objectives. The annual quality programme. Quality system Quality control work elements. The systems concept. Systems requirements and standards. The quality manual. Organization for quality Concepts. Quality control work elements. Evolution of the quality control organization. Organization for acceptance. Organization for prevention. Organization for improvement. Organization for coordination. Organization for assurance. Getting started Introducing change. Selling quality control to top management. Developments in quality control. National approaches to quality. Quality control associations and organizations. Developing countries and quality control Phases in industrial development. Situation in developing countries. National plan for quality control.

Structure and content of the course "Quality Control in Industry" 1983.

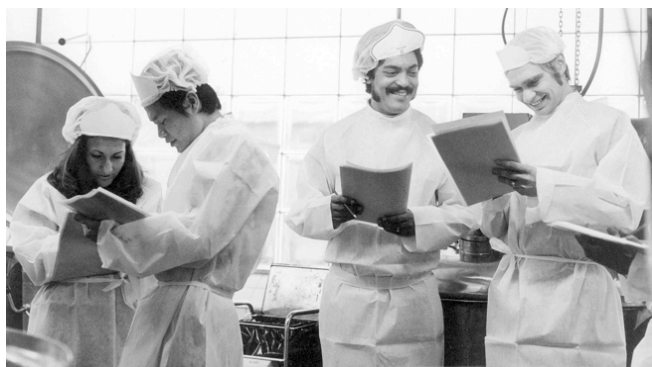


The course "Quality Control in Industry" 1974.

WORK ALL OVER THE WORLD



Practical studies at Electrolux vacuum cleaner factory 1973. From left Yiu-Hang Chau (Hong Kong), Syed Saleheen (Bangladesh), Sahle Asefa (Ethiopia), Yehya Gado (Egypt).




Practical studies at ACO Pharmaceuticals 1973. From left Wathega Yousif (Iraq), Pairoj Sanyadechakul (Thailand), Mohammad Zamani (Afghanistan), Kjell Söderlund (ACO Pharmaceuticals).



Group work in the course "Quality Control in Industry" 1973. From left Ngeon Lee-Yoong (Singapore), LS, Edgardo Paynor (Philippines), George Sheikb Maya (Iraq), Hashim Mahmoud (Sudan), Kwai-Piu Li (Hong Kong).

WORK ALL OVER THE WORLD



 **UNIDO**
United Nations
Industrial
Development
Organization

UNIDO (United Nations Industrial Development Organization) believes that quality control is a prerequisite for successful industrial development. It has therefore, during the last five years, given Björklund & Sandholm the assignment to carry out training in quality control for engineers in developing countries. The training includes a 10-week course held in Sweden with participation of Swedish industry, and a 2-week course held in different developing countries. For the administrative work of the courses, the Swedish Employers' Confederation's training organization, ALI-RATI, is responsible. So far, 130 engineers from 37 countries have attended these courses.

Björklund & Sandholm

Rådgivning och utbildning i kvalitetsstyrning och tillförlitlighetsteknik

Söder-Tryck AB

The course catalogue for 1977 included information on the UNIDO courses.



The leisure time activities included a picnic to the Stockholm Archipelago. This is at Grinda Island, 1975.

The participants were given a comprehensive documentation that included three large files (one for each theoretical part) containing outlines, references, and additional documents. Among the documents included were articles that ASQC and EOQC had provided with permission to copy. In addition, each participant received a copy of Juran's "Quality Control Handbook" and the book "Quality Planning and Analysis" by Juran and Gryna. It was important that the participants, after returning home, had access to an appropriate documentation to serve as a reference for their work.

In 1979, a new governmental agency was set up, the Swedish Commission for Technical Co-operation (Swedish abbreviation BITS). This agency was given the responsibility for funding international training. It meant that UNIDO and SIDA came to an end as partners.

At the beginning of 1986, I was contacted by a former course participant from Uruguay, Carlos Saccone, with a proposal to provide training in quality for business leaders. BITS was in favor of this. Hence, training in the form of a top management seminar with the title "Quality Leadership" was implemented the same year. The seminar was carried out in the context of the EOQC conference in June in Stockholm, which meant that the participants attended the conference as well. The initiator, Carlos, was one of the participants. Interest in this management seminar was great. In 1993, it was attended by about 50 managers from 20 countries. In order to be able to cope with the large number of participants, the training was carried out in two groups.

Great interest in this international training became apparent in that the number of applications far exceeded the capacity. BITS then decided to fund two ten-week courses annually, beginning in 1989.

WORK ALL OVER THE WORLD

With the development of the quality profession and the need for additional training outside the industrial sector, the course offerings were widened. Consequently, training courses and seminars directed to the service and public sectors were also developed and presented.

In the years, 1971-1999, we carried out a large number of international training courses and seminars in Sweden. There were a total of 35 courses with a length of 10 weeks and 23 courses and seminars with a length of two or three weeks. The total number of participants was 773 and 446, respectively. 79 countries were represented.

Most of the participants came from countries in Africa, Asia, South and Central America. With the changes in Eastern Europe in 1989, participants came from these countries as well.

In the weeks spent together, the participants got to know each other very well. This was especially true for the participants in the ten-week courses. When it was time to leave Sweden for their home countries, there were mixed feelings, sad to leave newly acquired good friends, but nice to see family and friends in the home country again.

We were responsible for the content and the conduct of the courses. Practical issues such as administration, facilities, accommodation, transport, economy, etc. were handled by the MGroup (a consulting and training institute belonging to the Swedish Employers' Confederation, SAF). Hans Ericsson was responsible for these tasks. He had a solid experience in managing international training activities. In all the years our cooperation was conducted in an excellent manner. Hans and I were responsible for evaluating all applications and selecting those who would participate in the respective course or seminar. Usually, 20 participants were selected.



Together with Hans Ericsson at a conference at the UNIDO headquarters in Vienna in 1974.

WORK ALL OVER THE WORLD

Africa	Americas	Asia	Europe
Algeria	Argentina	Afghanistan	Albania
Botswana	Barbados	Bangladesh	Cyprus
Egypt	Bolivia	Bhutan	Estonia
Ethiopia	Brazil	Burma	Latvia
Ghana	Chile	China	Lithuania
Kenya	Colombia	Hong Kong	Malta
Lesotho	Costa Rica	India	Poland
Malawi	Cuba	Indonesia	Portugal
Mauritius	Dominican Rep.	Iran	Russian Fed.
Mocambique	Ecuador	Iraq	Slovakia
Morocco	El Salvador	Jordan	Ukraine
Namibia	Grenada	Korea	
Nigeria	Guatemala	Laos	
South Africa	Guyana	Malaysia	
Sudan	Haiti	Nepal	
Tanzania	Honduras	Pakistan	
Tunisia	Jamaica	Palestine	
Uganda	Mexico	Philippines	
Zambia	Nicaragua	Saudi Arabia	
Zimbabwe	Peru	Singapore	
	Trinidad - Tobago	Sri Lanka	
	Uruguay	Syria	
	Venezuela	Thailand	
		Vietnam	
		Yemen	

79 countries represented in our international training courses in Sweden, 1971-1999.

DISSEMINATION TO 40 COUNTRIES ON ALL CONTINENTS

The UNIDO Program Directors (of which I was one) were invited to a conference at the UNIDO headquarters in Vienna in 1974. At the conference, discussions were directed at how the training activities could be developed. To date, the courses were usually held in industrially developed countries. A proposal was made that training courses should also take place in developing countries with participation from the immediate region. The quality courses were mentioned as there was a recognized need for training in quality. Furthermore, these courses were easy to organize since I could serve as the sole lecturer needed to carry out this training. Attending the conference was Yusuf Mazhar, who was head of the Engineering Design and Development Center (EIDDC) in Egypt. He offered to arrange the first course in Cairo. Stig Ringenson, who was SIDA's representative at the conference, promised immediately to give the financial support. Thus, I was able to plan and carry out the first regional training in quality.



Conference with UNIDO Program Directors in Vienna 1974.

WORK ALL OVER THE WORLD

Hans Ericsson and I visited Cairo in January 1975 in order to prepare for the course. With the local organizer we agreed on program, facilities, study visits, etc. We returned to Cairo in May in order to carry out the course.

The course had 25 participants, mainly from Egypt, but also from some other Arab countries.

The opening session that was held at the Hilton Hotel on the Nile, was attended by some dignitaries, among them the Egyptian Minister of Industry and the Swedish Ambassador. In my opening address, I showed Juran's image of a mural in a tomb in Thebes from the year 1450 BC, with the comment that quality activities were not new in Egypt. The attendees beamed with satisfaction. During the following break I was approached by a gentleman who asked for a copy of the image. I gave him a copy and in the morning paper, Al Ahram, the next day it could be read that, according to a Swedish quality expert, quality was not anything new to Egypt. It was there 3000 years ago. The image was included in the newspaper. The man who asked for the image was apparently a journalist invited to the opening session.



Giving the opening address at the course in Cairo 1975. At the head table we can see Yushuf Mazhar and Albert Sissingh who was responsible for the UNIDO training programs.

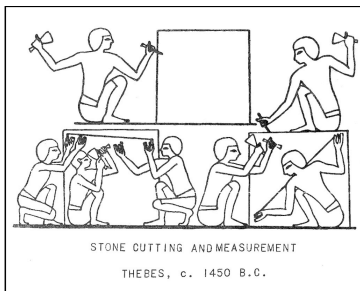
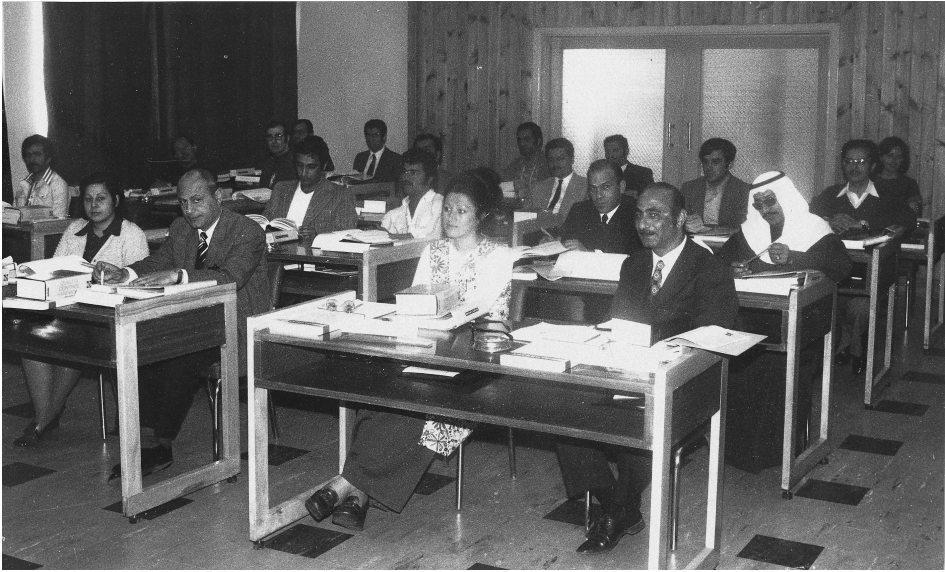


Image used by Juran shown at the opening session in Cairo.



The course in Cairo in 1975 was the first course abroad.

The course in Cairo was the first in a series of UNIDO courses that I carried out at the regional level with sponsorship by SIDA. UNIDO invited countries within each region to the courses. For the local arrangements, an organization in the hosting country was responsible, in most cases the national standards body. Places after Cairo were:

1976
Manila, Philippines

1977
Nairobi, Kenya

1978
Lahore, Pakistan

1979
Kingston, Jamaica

1980
Bangkok, Thailand

WORK ALL OVER THE WORLD

1981

Singapore⁸

1982

Colombo, Sri Lanka



Only men in the training course in Lahore, Pakistan in 1978.



Many women in the training course in Kingston, Jamaica in 1979.

A few months before each course, Hans Ericsson and I visited the national organization responsible for the arrangements. We then planned together in detail how the course would

⁸It was not a course that was carried out in Singapore in 1981. It was a follow-up seminar for Asian participants who had been trained in Sweden. The title of the seminar was "Seminar on Introduction of Industrial Quality Control practices in Asian conditions". Part of the seminar was devoted to reports by the participants on what they had achieved after having returned from the initial training.

WORK ALL OVER THE WORLD

be carried out. These preparatory visits contributed significantly to carrying out the training courses without any problems.

When BITS took over the responsibility for international training courses, the regional UNIDO courses terminated. I continued, however, to provide training courses and seminars in different countries. Some of these were financed by BITS, some by other organizations (both national and international). In this way, the countries in which I was able to give training courses and seminars were: Argentina, Australia, Chile, China, Czechoslovakia, Ecuador, Estonia, Ethiopia, France, Ghana, Guinea, Iceland, India, Iraq, Jamaica, Japan, Kenya, Korea, Lithuania, Malaysia, Mexico, Nigeria, Philippines, Portugal, Russia, Singapore, South Africa, Sri Lanka, Sudan, Tanzania, Thailand, and Uruguay.



Management seminar in Manila, Philippines in 1992.

In some countries, mass media was used to promote quality. Often, I was interviewed by newspapers, but also by radio and television. The latter was the case in Kenya and Sri Lanka. I was very surprised when I was in a rural place outside of Sri Lanka's capital, Colombo, and saw myself on a TV set. It was a replay of an earlier interview.



Radio interview in "Behind the News" in Colombo, Sri Lanka in 1983.

MANY INDIVIDUAL MEETINGS TO BE REMEMBERED

As mentioned above, many course participants were met over the years. However, those remembered best were from the first courses. This was probably due to the fact that I was new to international lecturing and thus engaged myself more completely in the individuals met.

There are a few participants in particular that I remember well. This is the case with Maria Rodriguez from Cuba and Manuel Wladdimiro from Chile who attended the first course in 1973. We noticed that Maria was very well cared for by the Cuban Embassy during her stay in Sweden. She was met by the Embassy at the airport when she arrived. Much later, I learned from another course participant that her father was a high-level official directly under Fidel Castro in the ruling hierarchy in Cuba. This explained why she objected when, in a lecture on statistical acceptance inspection, I mentioned that the sampling system ABC-STD-105 was developed with participation of experts from USA, Great Britain and Canada. This led to the designation ABC: A for America, B for Britain and C for Canada. Maria immediately objected and pointed out that America was much more than the USA.

When Manuel was in Sweden, Augusto Pinochet took power in Chile. Since Manuel belonged to the Communist Party in his home country, he could not return home for fear of being arrested. The Swedish Ambassador to Chile, Harald Edelstam, managed to get permission for Manuel's wife and children to go to Sweden. The family returned to Chile when the military junta had fallen.



Maria from Cuba and Manuel from Chile attended the UNIDO course 1973.

In the 1973 course, there were three participants from Iraq. One of them was a young female textile engineer, Watheqa Yousif. I met her again when I was in Baghdad, conducting a training program organized by the Iraqi Standards Institute in 1978. One evening Watheqa accompanied me to dinner. As she was not married, her brother was with us as a chaperone. Although she was over 30 years, she was not allowed by her parents to go out alone with me. When I left Baghdad, she took me to the airport. She told me that she was very glad to be able to leave without a supervisory brother. She hoped that her generation of women would be the last one treated in this way. The war in Iraq, and its consequences, has not improved Watheqa's situation, in particular, in view of the fact that her family was part of the Christian minority. Some years ago, I received to my surprise an email from her. She was then in a refugee camp in Syria. There are people for whom life is not always good. One of them is Watheqa.



Watheqa from Iraq and Pairoj from Thailand in the UNIDO course in 1973.

Another participant in the 1973 course was Pairoj Sanyadechakul from Thailand. He worked at the Thai Industrial Standards Institute. As I later was often in Thailand (among other things, as Adjunct Professor at the Kasetsart University in Bangkok), I have been able to occasionally follow his career. Last I saw him was at a conference in Bangkok in November 2008. As State Secretary in the Ministry of Industry he opened the conference.



Reunification with Pairoj in Bangkok in 2008, 35 years after his training in Sweden.



Rachavarn with her secretary at the Kasetsart University in 2000.

Rachavarn Kanjanapanyakom was a participant from Thailand in the 1992 ten-week course offering and in the management seminar of 1995. She was Professor at the Kasesart University in Bangkok. After her studies in Sweden, she worked hard to invite me to Thailand and subsequently succeeded. I came to Thailand on several missions - assignments in industry, courses and seminars, but primarily to be Adjunct Professor at her university (see Chapter 9). The university commitment started in 2000 and continued to 2007. I lectured in the program "Post Graduate Course in Advanced Quality Management". Many of the students worked on daytime jobs, which meant that I lectured in evenings, as well as on Saturdays. It was stimulating to have contacts with the students. The time spent in Thailand has resulted in acquiring, with my wife, a flat in Thailand in 2006 where we spend the winters. Every year we meet Rachavarn in Thailand.

Carlos Saccone from Uruguay participated in the training in Sweden in 1976. He was with a pharmaceutical company, but also lectured on quality at the University of Montevideo. Later he proposed that we should introduce a two-week training in quality for business leaders. A management seminar with the title "Quality Leadership" was developed (see above). Carlos was one of the participants in the first seminar held in 1986. Over the years I had many contacts with him. I lectured several times in Uruguay for companies and at the

University of Montevideo. It was with great pleasure that I was appointed Honorary Doctor at the University in 2000, largely by Carlos' commitment (see Chapter 12).

Another Uruguayan I got to know well was Pablo Benia. He was head of the National Standards Institute (UNIT). Many of my training programs were organized in co-operation with his institute. Pablo was the owner of a ranch on Pampas about an hour by car from Montevideo. There, he bred cattle, horses and sheep. Several times he and his wife served the delicious national dish, Asado, with excellent wines at their ranch. An important person when I lectured in Uruguay was my interpreter. That task was performed by César Vasquez with great competence.



An enjoyable break during a seminar at the Chamber of Industries in Montevideo, Uruguay in 1988. Number two from left is Rudiger von Sanden (professor at the university), directly followed by Carlos Saccone, César Vasquez (interpreter), LS and Pablo Benia.

MANY UNFORGETTABLE EXPERIENCES

There are many memories from the journeys to various parts of the world. One unpleasant one was the visit to Ethiopia in 1977, where I went directly after the UNIDO training course in Kenya. I was there to hold a seminar in the capital, Addis Ababa. At the airport, a representative of UNIDO met me. He told me that there was a state of emergency in the city and a curfew at night since the military leader, Haile Marian Mengistu, had taken power. The opposition was treated brutally during the coupe. The UNIDO representative advised me not to stay at the hotel previously booked. The reason given was that people who had been killed were found in the hotel's swimming pool. Instead, I was advised to stay at the Hilton Hotel, which was safer. I remember very well hearing shootings in the evenings and nights. Another advice was that I should not wander outdoors, if not necessary. If I had to wander, it should be in a car with a United Nations' logo on the doors.

Before I was supposed to conduct the seminar, the organizer (Ethiopian Standards Organization) wanted me to visit a factory in order to get some insight to Ethiopian factories. I was not entirely happy with making such a visit under the present conditions of insecurity, but I accepted. Together with Joseph, who had been on training in Sweden, I went to a cement plant in the outskirts of Addis Ababa. By the road there were many civilians equipped with firearms. At the gate of the plant, there were armed men. One of them accompanied us to the plant manager's office. The manager received us at his desk. Beside him a soldier was standing with a machine gun. There was not much said about quality. The only thing I had in mind was to come out alive from the place as quickly as possible. On the way to the center of Addis Ababa, I told Joseph that I had never been so scared in my life. Joseph admitted that even he had been very afraid.

Several countries where I have visited are exposed to earthquakes. On two occasions I experienced quakes. The first time was in the Philippines at the end of the 1970's. I was invited by the country's largest industrial company, San Miguel (producer of beer, mainly, but also of food), to hold a seminar for senior managers. The seminar was held at a large international hotel in the center of Manila. Suddenly while lecturing, my legs began to tremble and the lights in the room (including that of the projector) went out. My immediate thought was that I was about to faint. Panic broke out among the participants and many cried "earthquake". The quake was not too strong and I could continue my lecture after a while. I was informed that we could expect another shock after a couple of hours. This shock came, but was considerably weaker.

WORK ALL OVER THE WORLD

The second time that I experienced an earthquake was in Mexico in the middle of the 1980's. After conducting a training program in Mexico City, I left during the weekend, in order to visit Acapulco on the Pacific Ocean. When I was going to bed in my hotel room on the tenth floor, the bed began to move. I looked out in the corridor and found that it had a rolling motion. It was clear to me that I had to go down to the ground floor and out of the building, as quickly as possible. Then I made a decision that could have been fatal, I took the elevator. However, it went well. Part of the night I spent in the open along with other hotel guests. I remember that it was a pleasant temperature. When it was safe to return, I asked the receptionist if there was a room on the first floor. He replied that it would not be safer, as the whole building might collapse over me.

A country that was interesting to visit was Jamaica. The first time I went there was in 1979. Working together with the administrative staff and the participants was always relaxed and positive. Sometimes, while lectures were being held, there was a rationing of electricity. We then had to take the projector and move the lecturing to another part of Kingston. Sometimes we had to locate the lectures at the hotel's pool site.

After the first visit in 1979 several visits followed, including in 1992 as a consultant to Grace Kennedy which was Jamaica's largest company. The company was active in the whole Caribbean and had several business areas - food production, distribution, airline catering, insurance, banking and finance.



Group work at the pool site in Kingston, Jamaica due to lack of electricity.

The Swedish International Development Authority (SIDA) received from the Trade Development Authority in India a request to finance a training program aimed at improving quality of exported industrial products. SIDA was in favor. Initially, I made an evaluation of possible partners in India. Accordingly, I visited several organizations in different parts of India in late 1982. The choice was the National Productivity Council, which had good coverage across the entire country. A program that included seminars for top managers and training courses for technical staff members was drawn up. The program was carried out at the beginning of 1983 in three major cities - Bombay, Madras and New Delhi.



The opening session of the training program for the Indian export industry in January 1983.

In the middle of the 1990's, my wife Annika Hökerberg served at the Swedish Embassy in New Delhi. I contacted people in India who had attended international training programs in Sweden. A positive outcome was that I carried out training courses in India during the time Annika was stationed there. The training sessions were mainly organized by the Federation of Indian Chambers of Commerce and Industry (FICCI). One session was held, in part, in Sweden, in order to make possible study visits to Swedish companies.

A company in Calcutta invited me to carry out a seminar for top managers in the spring of 1996. Together with Annika and our son Fredrik, I went to Calcutta to combine the seminar with sightseeing over a weekend. The seminar was on Friday. On Saturday, some people from the company came to our hotel in order to take us out on a sightseeing tour. On the question of what we wanted to see in Calcutta, I responded that it would be interesting to meet Mother Teresa. We were very surprised when they said that it was probably possible.

The company supported her activities economically. After an hour we got the information that we were welcome to meet her late in the afternoon.

We were taken to Mother Teresa's headquarters in Calcutta. The increasing darkness and a rainstorm contributed to a condensed atmosphere. Mother Teresa came with bent back towards us. With great respect we greeted her, and had a long individual conversation with her. She told us that she was to set up an activity in Sweden in order to help drug addicts. After the meeting, we attended an evening service with many sisters dressed in white robes with blue edging.



Meeting Mother Teresa in Calcutta in 1996.

A country that I had longed to visit was Australia. Through Joseph Juran I got this opportunity in 1985. He was invited by the state of Queensland to lecture in a campaign for better quality which the state government intended to run with the private industry. Juran felt that he did not have time to take on this mission. He recommended that I be invited to replace him. Juran's advice was followed. It meant that I conducted a seminar for top managers and a training course for quality managers in Brisbane. The reception was very positive. Queensland's Minister of Industry, Mike Ahern, showed a great deal of commitment by meeting me at the airport and he later participated extensively in my lectures. He then became State Premier of Queensland, two years later.

While on the mission to Queensland, I received an offer to become Professor of Quality Management at the Queensland University. It was an attractive offer, but I turned it down. Another outcome was that the Australian Organization for Quality invited me to conduct a number of lectures across the continent in the beginning of 1986. The first was in Brisbane. Then followed Sydney, Melbourne, Adelaide, and Perth. The lectures in Melbourne were held in a conference room of the Olympic Stadium from 1956. When I was there, the stadium was mainly used for cricket.

WORK ALL OVER THE WORLD

When traveling home I went through Heathrow Airport where I arrived early in the morning on Saturday, March 1. In the terminal I saw newspapers with headlines about the assassination of a politician. My first thought was that it had happened in a less developed country. But it was in Sweden. The Swedish Prime Minister Olof Palme had been shot.

In the beginning of 1999 I was invited to South Africa for lecturing. The first stop was Johannesburg, a city in which I was warned not to go out in the evenings due to the danger of robbery. Then came Cape Town. After staying there for two days I was taken to Stellenbosch, one hour drive from Cape Town. My training course was to be held in Stellenbosch, the area of which is the center of the South African wine industry. The course was held in a vineyard with beautiful buildings. The surroundings were idyllic hills and vineyards.

Johannesburg and Stellenbosch were antipodes. An insecure city versus a pastoral small town. Streets were dominated by colored persons versus an environment with almost exclusively white people. The majority of the inhabitants of Stellenbosch were descendants of the Dutch settlers (boers).



The vineyard Morgenhof in Stellenbosch is the most idyllic place where I have lectured.

In the later years there were a few memorable commitments. The first was as a speaker at a conference in Abu Dhabi in 2004. After my presentation with the title, "Strategic Plan for Sustainable Excellence", three gentlemen dressed in Arab traditional white clothing came up to me and said "We are from the Abu Dhabi Police Department". Before I had time to reflect on whether I had done anything illegal, they continued by praising my presentation. They were very interested in my message and wanted to take me to the Police Headquarters for a discussion. I went there the following day. At the visit I was asked to give a quotation on a consultancy assignment on developing the operations with a focus on quality. Being back in Sweden, I prepared a quotation. But I didn't receive any reply.



In Abu Dhabi 2004 together with higher police commissioners.

During all these years attending conferences in many different places on all continents, I have met a great number of people who have received and assisted me. The conference in Abu Dhabi gave me a new experience. I was received by a lady who showed just her eyes. She allowed me to take a picture of herself.



Received by a lady with magic eyes at the conference in Abu Dhabi.

Another memorable commitment was to Kazakhstan in 2008. It was a new region for me. Kazakhstan was one of the countries in Central Asia that became independent when the Soviet Union broke up. It was with great pleasure that I accepted the invitation to participate in a conference with the title, "3rd TQM KAZ-2008 International Quality Manager Forum". The conference was held in Kazakhstan's largest city, Almaty. The city was formerly known under the name of Alma-Ata and is the place where many world records in ice skating have been set. It was at the time when natural weather conditions were a must for achieving excellent results. I made two presentations - "The Widening Role of the Quality Manager" and "Achieving Excellence".



Kazakhstan 2008. Thanks by Professor Azat Abdrakhmanov who presented a diploma and a traditional Kazakh dress. Abdrakhmanov is now a colleague in LAQ.

FIRST WESTERNER IN CHINA

In the ten-week UNIDO training program held in Sweden in 1980, there were for the first time participants from the People's Republic of China, namely two middle-aged gentlemen, Daling Yang and Jinfu Zhou. Both worked on a managerial level with inspection in the metal working industry. They spoke excellent English, Zhou with an American accent since he had listened a lot to Voice of America (the US radio channel addressing communist countries). It was exciting to meet with participants from mainland China which, after many years of secrecy, had opened under Deng Xiaoping some years earlier.



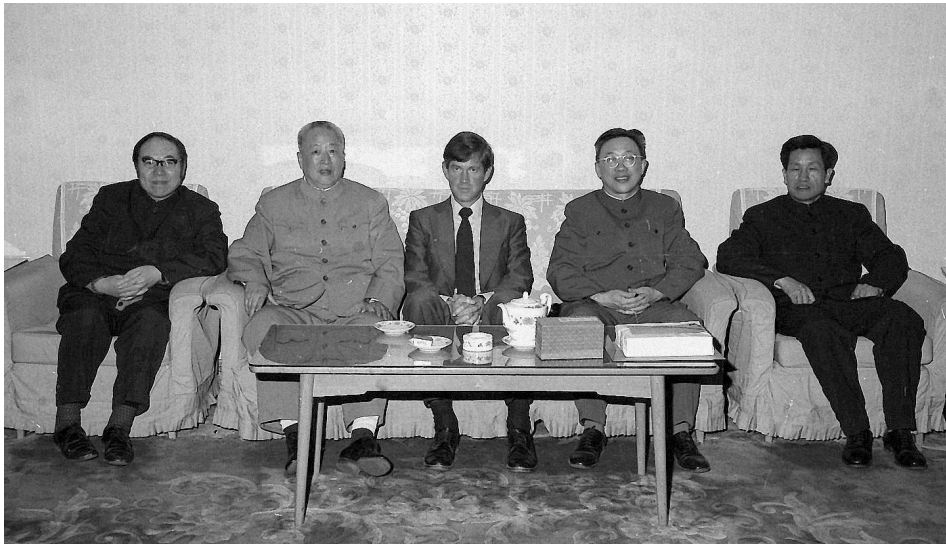
Zhao and Yang in the week of practical studies at the Electrolux vacuum cleaner plant 1980.

Yang and Zhou were very much engaged in their studies. Very satisfied with the ten weeks in Sweden, they were convinced that Chinese industry had great need for this training. Hence, on their return they contacted the leaders in Beijing to inform them about their new found knowledge, as well as to encourage them to invite me to China. After some time, I received an invitation from the Ministry of Machine Building Industry. At that time industries were Government-owned and belonged to a ministry - the Ministry of Machine Building Industry, the Ministry of Electronics Industry, the Ministry of Chemical Industry, etc.

In March 1981, I went by Air France via Paris to Beijing. At that time, only a few airlines flew to China. I arrived very late to a dark Beijing at three o'clock in the morning and was met at the airport by some representatives of the Ministry. They told me that a seminar was scheduled to be held the following morning. They were, however, willing to cancel the

seminar due to my delayed arrival. I replied that I had no problem with fatigue and wanted to participate as planned.

The following morning I was picked up at the hotel and taken to a large building in which the seminar was to be held. It was a journey through a city with only a few cars, but a lot of cyclists who were on their way to work; a rare experience. The building belonged to the State Planning Commission. I was received there by the organizers. After an hour of talks and tea sipping in large armchairs, it was time to start the seminar. I was taken to a large hall. On the stage there was an overhead projector and a white screen. I could, however, not see the audience as the curtain was down. There was quite a buzz behind the curtain. On my question to the interpreter about the number of people, he replied 1200. The curtain went up. The hall was crowded with ladies and gentlemen, all dressed in blue or green Mao-suits and with a note pad and pen ready for taking notes. I was told that all participants were top managers in industry. Joining me on the stage was the Minister of the Electronics Industry.



Gathering before the first seminar in Beijing in March 1981. To the left is Professor Yuanzhang Liu who did the interpreting. Between him and me is the Minister of the Electronics Industry. To the extreme right is Chen Renhui who belonged to the Ministry of Machine Building Industry. He visited later Sweden.

The interpreter spoke very good English with an American accent, since he had studied in the USA. This circumstance affected him badly during the Cultural Revolution. He was sent to rural areas, where he was forced to do heavy physical work under harsh conditions. This led him to become disabled, which was clearly seen. After the Cultural Revolution he came back to his university. His name is Yuanzhang Liu⁹. After the seminar in 1981, I have met him several times, mainly since we are colleagues in the International Academy for Quality.

At the end of the same day, I flew to Shanghai where I was scheduled to give a one-week training course for quality managers from all over China. In the morning break of the first day, I was informed that the interpreter was less successful with the interpretation. The reason was that he was not experienced enough with the quality terminology. Then my student from the course in Sweden, Jinfu Zhou, offered to do the interpretation. I repeated what I said before the break and this was interpreted by Zhou. Obviously, he did it with great competence. He became my interpreter during some years when I lectured in China. He became very familiar with my material and the way I presented it. I remember with pleasure when I talked about product quality auditing at a later occasion. After having heard Zhou say "A, B, C, and D" among all Chinese words, I asked him if I had really said that. His response was "No, but you are going to say it". He had already mentioned the classification of defects into the classes A, B, C, and D, denoting degrees of seriousness .

Assignments were usually included in my training courses. The participants had to work on them, often in small groups. After having introduced assignments the first day of the training in Shanghai, it was suggested by the organizers to let the participants work on the assignments in the evenings. In the daytime they should listen to the lectures. So this became the situation in all courses that I conducted in China. I distributed the assignments in the course of my lecturing and the participants worked on them after dinner. The following day started with reports on the previous evening's work on the assignments. These reports were well prepared and the solutions were excellent. I was impressed by the participants' motivation and results.

⁹Yuanzhang Liu contributed to the silver jubilee book "Quality without Borders" (see Chapter 2) with an article entitled "Dr. Sandholm's Contributions to China's Total Quality Management". He begins with "I met Dr. Sandholm on March 17, 1981 during his first visit to China. I still remember clearly the spectacular occasion when he lectured on TQC to an enthusiastic audience who filled the auditorium of the State Planning Commission in Beijing. Since then, he visited China every year until 1989. Dr. Sandholm is not only the first Western expert on quality to have visited China, but also the most widely travelled, as shown in the map below."



My first training course in China was held in Shanghai in March 1981.

My visit in 1981 meant that I was the first Westerner to lecture on quality in China. It was the start of a long series of training courses that I conducted there. Throughout the 1980's I visited China once or twice every year. The visits had a length of two to three weeks. When I was there, we discussed what to focus on for the next training program. After my return to Sweden I prepared a course documentation in English and sent it to China. Documentation in Chinese and English was always available when the training started.



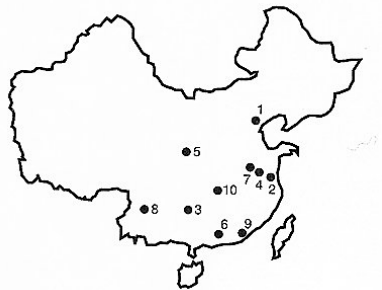
Reporting group work. Zhou, the interpreter, is seen in the background.

WORK ALL OVER THE WORLD



"Goodbye and welcome back!"

1981 Beijing (1)	Quality
Shanghai (2)	Quality Function
1982 Guilin (3)	QC Methods
1983 Changzhou (4)	Quality Consulting
1984 Xiang (5)	Total Quality
Zhauging (6)	Quality Management
1985 Nanjing (7)	Quality Cost
1986 Kunming (8)	Quality Improvement
1987 Xiamen (9)	Quality in Design
1988 Xiangtan (10)	Quality in Purchasing



In his contribution to our silver jubilee book "Quality Without Borders", Yuanzhang Liu gave a presentation of the training courses I conducted in China in the 1980's.

WORK ALL OVER THE WORLD



Many students participated in the trainings in China in the 1980's.

At an early stage it was realized that quality consultants were needed. I was asked to conduct the training of about a hundred consultants in 1983. The training program consisted of three parts. The first part dealt with quality management in general. In the second part the participants evaluated the quality activities of a fictitious company with the help of prepared information and then proposed measures to be taken. In the third part the participants had the task of studying on the spot a real company in order to prepare a plan for improvements. The company in question was Changzhou Diesel Engine Works which manufactured small tractors for agriculture. The training was held on the site of the company.

The results were presented orally and in writing. The presentations were followed by interesting and fruitful discussions between the participants, the company management, and the course management. After the completion of the training, the participants had to carry out consultancy services, as well as to train other consultants. An extensive literature was given to the participants. It included Juran's Quality Control Handbook and my book on quality management, as well as material on quality consulting. All literature was in Chinese.

*Welcome to Changzhou Diesel Engine Works
1983.*



*Changzhou Diesel Engine Works manufac-
tured minor tractors for agriculture.*

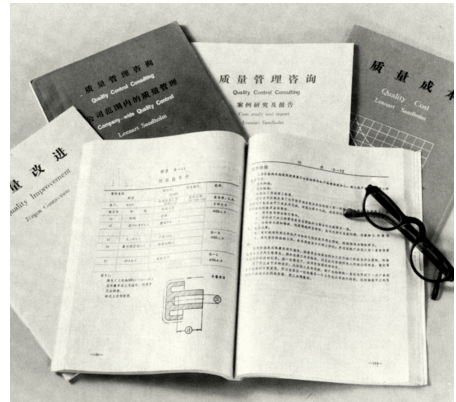




Excursion on the Lijiang River flowing through an idyllic landscape with steep mountains and passing the city of Guilin where the second course in China was held in 1982.

Regardless of where the courses were held in China, participants came from all over the country. The organizers were from the Ministry of Machine Building Industry and the China Quality Control Association (now called China Quality Association), which was a Government organization with the task of developing quality in the country.

Since China is extremely large, the courses that I conducted could only contribute marginally to the quality development, even if the usual number of participants were between five-hundred and a thousand. Therefore, my students had the task to do further training using my documentation. Likewise, their students would also do further training, etc. In this way, the knowledge could be disseminated in this large country. The course documentation itself has been spread widely.



Documentation used in China in 1980's. It was available both in Chinese and in English.

The course in Nanjing in 1985 included systematic improvement work. After a couple of days, a participant told me that his factory, located in Nanjing, worked in the way I had been discussing. He invited me to his factory and we went there when I had finished lecturing in the afternoon. The participant guided me through the factory, which produced large machinery, at the same time as he told me about the improvement projects. We met among others a plant engineer who told me in Chinese how they worked in his department. My participant translated into English. The engineer said that they used "Sandholm Control", without knowing that I was standing in front of him. It was, of course, a great surprise when the situation became clear.

This was the first time I came across the term, "Sandholm Control". As a consequence of the wide dissemination of my training documentation, this term was obviously created. Another example of this was from a ten-week course held in Sweden in the early 1990's. In the break after my introduction, a Chinese participant came up to me and said that he now understood why they spoke about, "Sandholm Control", in his country.

Training of Chinese was not held in China only. A request came that such training should be conducted in Sweden as well, in order to include visits to Swedish industrial companies. One of the participants in Sweden in 1989 was Tang Xiaofen whom I had many contacts with in the 2000's. She had by then become a professor and a leading quality person in Shanghai, including head of the Shanghai Academy for Quality Management and the Shanghai Association for Quality. For some years now she has been a colleague in the International Academy for Quality.

The training in China had been financially supported by the Swedish Government agency, BITS. When the economy in China began to develop in a strong way, this support came to an end. Thus our activities in China entered into a new phase in the 2000's.

At a conference organized by the Asia Pacific Quality Organization in Beijing in 2002, I gave a presentation entitled "Strategic Business Development". When I had finished my presentation, a gentleman came up to me and introduced himself. He appreciated my presentation and told me in perfect English that he had a consulting company working in the field of quality. He asked if I could consider a cooperation in China with his company. I replied that I was willing to explore the possibilities. His name was Boon How Chong and his consulting company was Berkeley Henderson Consulting Company.

Also at this conference, I received an invitation to speak at a conference on Six Sigma in Shanghai two months later. I told Chong that it was possible for me to meet him in Beijing on my way to Sweden from Shanghai. We then met and informed each other about our activities. He had a good background in quality as he had been the Quality and Customer Service Director for Motorola in China before becoming a consultant. He had obtained the Motorola job through a headhunter service. Previously, he had been Quality Manager of Acer and Hewlett Packard in Malaysia. He was born and educated in Malaysia. We agreed to establish a cooperation.

Svenskt kvalitetstänkande ska lyfta kinesiska bolag

Di Kina
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PEKING
En verksamhet där kvalitetstänkandet sitter i ryggmärken.
Med detta affärskoncept riktar sig Berkeley-Sandholm, ett nytt svensk-kinesiskt affärssamarbete, till företagsledare i Kina som vill förbättra lönsamheten.

Bakom ligger det svenska konsult- och utbildningsbolaget Sandholm Associates i Djursholm och Berkeley Henderson Management Consulting Company (Berkeley), ett konsultbolag med sitt huvudsakliga försäljningskontor i Peking.

"Senare tänker vi även uppvakta multinationella bolag i Kina", säger Lennart Sandholm, grundare och delägare i Sandholm Associates.

"Men vi tänker också vända oss till svenska bolag som finns i landet, inte minst till dem som är tillverkande."



TALARE. Boonhow Chong, grundare och ägare av Berkeley och Lennart Sandholm, grundare och delägare i Sandholm Associates pratade om svenskt kvalitet i Kina.

FOTO: AGNETA ENGQVIST

In the leading Swedish business paper there was an article on our new cooperation in China. The headline reads "Swedish quality thinking will raise Chinese companies". (Dagens Industri, December 11, 2003)

WORK ALL OVER THE WORLD

In the following years I visited China several times carrying out training courses and making presentations. Part of our training documentation was translated into Chinese. In addition, promotional material in the Chinese language was prepared, such as parts of our training catalogue, as well as articles in our newsletters. We received financial support for the establishment by NUTEK and ALMI (Swedish Government agencies). This was in the form of a loan which was cancelled when we had carried out the plans according to our loan application. The organization of the cooperation was named Berkley-Sandholm Institute of Performance Excellence.



Discussions with Chong in his office in Beijing in 2005.



Together with Chong and his colleague Catherine Tong.



Promotion booklet on Berkeley-Sandholm Institute of Performance Excellence.

A consequence of the ongoing cooperation was that we employed Yuting Chou for carrying out translations. Yuting was born in China but grew up in Sweden. She graduated in engineering at the Linköping University in Sweden. She provided excellent support for the contacts with our new Chinese partner.

In order to improve the pace in the business, I contacted Professor Tang Xiaofen in Shanghai. Regrettably, I was not able to communicate directly with her since she didn't speak English. Communication was essentially through Chong. Tang was very much in favor of a collaboration and even offered office space in Shanghai. Two mutual projects were launched. One was a Quality Manager Training Course and the other a CEO Quality Forum, which was supposed to be an annual seminar for top managers. In 2005, I received two honors at Tang's initiative. The first being named as Honorary Professor at the Shanghai Academy of Quality Management, and the second receiving the Shanghai Magnolia Quality Award by the Shanghai Association for Quality.

The quality manager course had a length of 10 days and was divided into three parts. It was carried out during the first half of 2006. In total 18 people attended, 5 of them from Swedish companies operating in China. At the end of the course a written examination was

The quality manager course in Shanghai in 2006 was attended by five people from Swedish companies operating in China: Frank Zhou (SAPA), John Lu (UEAB), Owen Zhu (Höganäs), Wu Jie (Tetra Pak) and Susan Wei (Volvo).

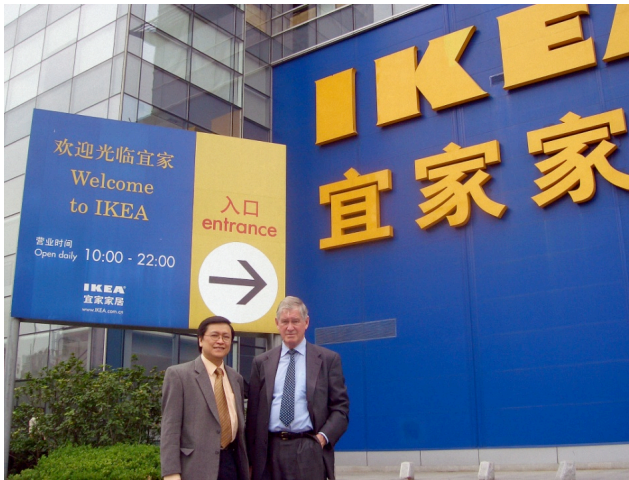


Some speakers in the CEO Quality Forum held in Shanghai in January 2006. The lady is Professor Tang Xiaofen surrounded by John Carlsson on the left and Mauritz Sahlin on the right.



given. Passing the exam led to certification as a Quality Manager. The participants' evaluation was very positive.

The first CEO Quality Forum was held in January 2006. Among the speakers were, in addition to Chong and myself, the former CEO of SKF, Mauritz Sahlin, and IKEA's Purchasing Manager in China, John Carlsson.



Visit to IKEA in Shanghai in 2005 with Chong.

Over the years with the Berkeley-Sandholm Institute of Performance Excellence, in-house training was provided by Chong and myself, among others, for the Chinese IT company 263 and for IKEA. The IKEA activity included training of Chinese suppliers and staff members working with suppliers. Before the training was launched I visited some suppliers in order to find out how they worked.

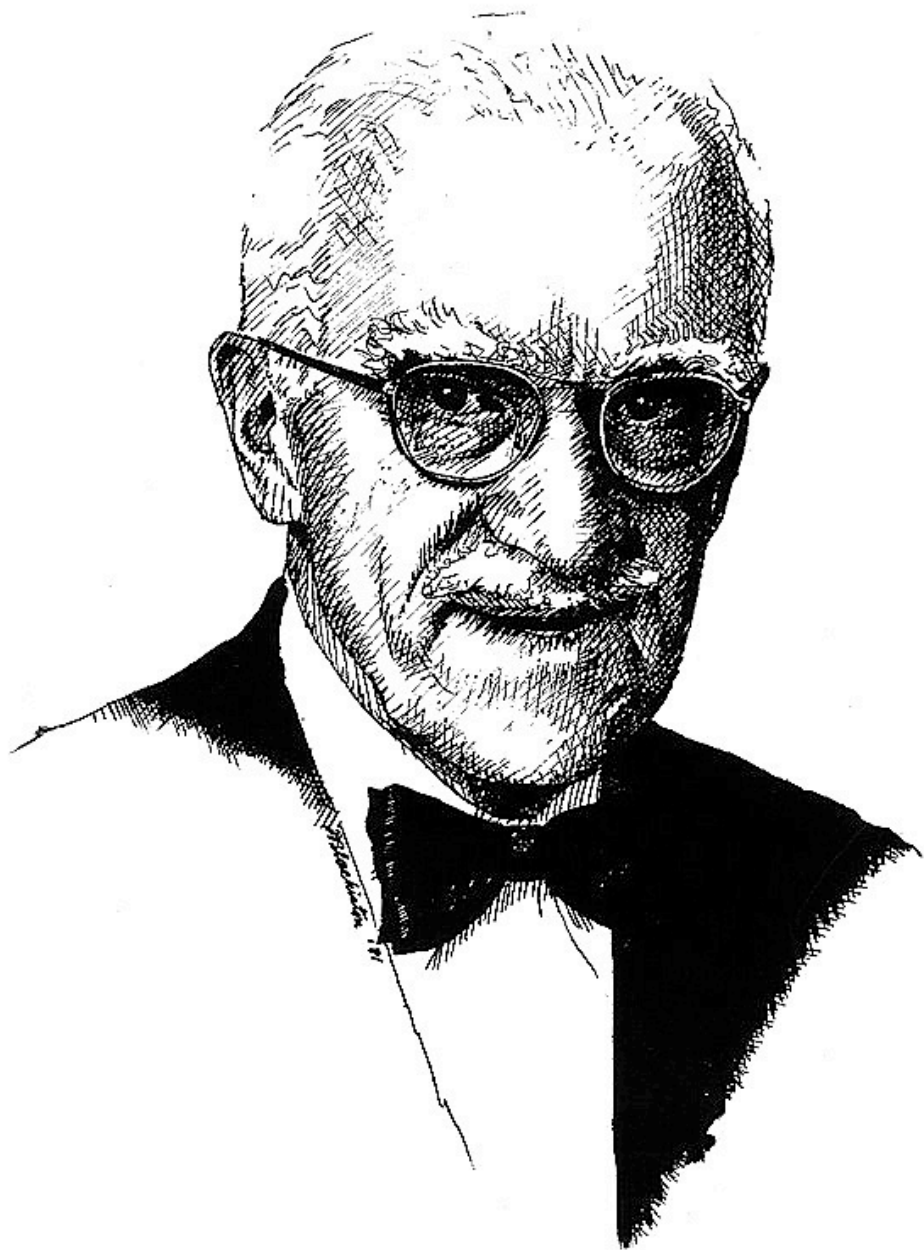
For a period of 25 years I visited China many times. I had the privilege to follow closely the huge development that the country had undergone. During the first years of the 1980's, there was a swarm of cyclists on the Beijing streets, even in the winters. The cars were few. Later it was the other way around. The congestion of cars was extreme. There were not so many cyclists any longer. The street scenery had changed in another respect. Earlier, both men and women were dressed in blue or green Mao-suits. Skirts on women were rare. Any lipstick or makeup was not seen. Later people were dressed in the same way as in cities in the Western World. Women bought dresses designed by international fashion houses.

In these years of working in China I had the pleasure of meeting many interesting people. One of them was Vice-Premier Wu Yi whom I met in the huge central governmental quarters in Beijing in 2002. In the list of the most powerful women of the world, she was rated second, after the American Secretary of State, Condoleezza Rice.

WORK ALL OVER THE WORLD



Received by China's Vice Premier Wu Yi in 2002.



Joseph Juran 1904-2008

JOSEPH JURAN - AN EXCEPTIONAL MENTOR

A DECISIVE MEETING IN 1965

As Quality Manager of the Electrolux Group I was invited to the European quality conference in Rotterdam in 1965 to present a paper on how Electrolux changed from an inspection oriented culture to a culture of improvement and prevention in a few years. At the conference, Carl-Anker Kofoed who was the Quality Manager of the Danish company Danfoss, introduced me to Joseph Juran. I knew Kofoed well since Danfoss delivered refrigeration compressors and thermostats to Electrolux. It was a great moment to meet Juran. As a young Quality Manager I had Juran's "Quality Control Handbook" as a source of inspiration.

I mentioned to Juran that a month later I would go to the USA to study there for a period of seven months. Juran asked me to call him when arriving in the USA. Of course, I rang him up. This resulted in an invitation to his home in New York City. It was a short trip since I studied at Rutgers University in New Jersey, just one hour's drive. During my stay in the USA, Juran invited me several times. The visits laid a foundation for a fruitful cooperation and a close friendship which lasted to his decease in 2008 when he was 103 years old. I also became acquainted with Juran's wife Sadie. Their marriage lasted for more than 80 years.

Juran was born on Christmas Eve, 1904, in the small village of Braila in the Austrian-Hungarian Empire, now Romania. In his memoirs "Architect of Quality" which came out in 2003, he writes that the village was free of today's quality problems as they had no products that could cause such problems (electrical equipments, cars, etc). The family emigrated to the United States and lived in a small, very primitive house, on the outskirts of Minneapolis with many Swedes and other Scandinavians as neighbors. It was characterized by a high level of poverty. By means of various jobs and scholarships he could finance his studies at the University of Minnesota. After his graduation in 1924 he began to work at Western Electric's Hawthorne plant in Chicago. There he devoted himself to quality matters. This led to his successful career.

JURAN AT THE ROYAL INSTITUTE OF TECHNOLOGY ALREADY IN 1950

Joseph Juran's activities outside of the USA began in 1950, when he visited Sweden, Holland and the United Kingdom. He lectured in Sweden before he went to Japan. It was as a guest lecturer that he was invited to the Royal Institute of Technology in Stockholm. At that time in Sweden, statistical methods had begun to be implemented. This was a consequence of such methods being applied successfully in the US defense industry during World War II, with names such as Bell Control and Statistical Quality Control. Quality efforts in the years after the war were, to a great extent, synonymous with the use of statistical methods in manufacturing.

For many of those who listened to Juran's message in 1950 it became clear that it was not enough to simply use control charts and sampling plans. Juran made clear that it was necessary to work systematically with activities in all company functions that influenced product quality. Juran also strongly emphasized the role of management in this work.

JURAN BACK IN SWEDEN IN 1966

As a member of the Board of the EOQC Conference in Stockholm in 1966, I invited Joseph Juran as a speaker. He accepted the invitation. The conference was later considered to be a historic conference, not the least by the Japanese. It was the first time the Japanese successful quality activities were discussed outside of Japan, which was entirely due to Juran. The background was that he came to the conference more or less directly from a visit to Japan. The improvement activities seen in Japan impressed him a lot, in particular, improvements carried out by workers in small groups. Juran discussed in detail how a group of young female workers in the assembly of car radio receivers had improved the fitting of knobs. Groups of this kind became widely used in the beginning of the 1980's in the West when it became clear that companies were facing strong competition from Japanese companies. The groups came to be called "Quality Circles" (see Chapters 7 and 10).

Juran's presentation at the conference in Stockholm created a great deal of attention. This led to setting up an extra session focusing on quality activities in Japan. In addition to Juran, Kaoru Ishikawa participated in this session. He is considered to be the father of the Quality Circles (see Chapter 7). Juran made the prediction: "As the Japanese are working now, they will become the world leaders in quality in twenty years from now, if we in the

JOSEPH JURAN - AN EXCEPTIONAL MENTOR

West do not respond accordingly". Very little was done in the West, and Juran was right. Twenty years later, in the 1980's, the Japanese had become the leaders.

In private talks, Juran often recalled the conference in Stockholm. This went beyond its impact on quality. He recalled how he was transported by boat between his hotel (Foresta on the island of Lidingö) to the conference center every day in brilliant sunshine (the conference was held in June). It was for him a memorable stay in Stockholm. During the conference in Stockholm, Juran also visited the headquarters of Electrolux. He conducted a seminar for top management (see Chapter 1). The seminar became very important to the development of the company.



Juran at Electrolux 1966. On the right the Vice President of Manufacture, Sune Ericsson.

In my contacts with Juran, he informed me about his management course. The course with the title "Management of Quality Control" was given in cooperation with the American Management Association. On my inquiry as to whether he would be willing to give the course in Sweden, he replied positively. As a result, he came back to Stockholm in October of the same year. Through my involvement in the Swedish Association of Metalworking Industries and in the Swedish Society for Quality, these two organizations were the organizers. The course was held at a downtown hotel in Stockholm, and was attended by 120 people, mainly from the engineering industries. At that time, other industries and service organizations did not realize the importance of quality work. The course was received very positively and was a real eye opener for the participants.

FREQUENT PARTICIPATION IN EUROPEAN CONFERENCES

In 1956 a group of national quality organizations in Europe formed an association under the name of the European Organization for Quality Control (EOQC). Later the name was changed to the current name of the European Organization for Quality (EOQ). Through the existence of the European organization, Joseph Juran began to take an interest in our part of the world. The first time he attended a conference arranged by EOQC was in Turin in 1961. In total, he participated in 25 European annual conferences. The last was in Dublin 1990, since he stopped all international traveling beyond that. For information on EOQC/EOQ, reference is made to Chapter 8.

Juran found that he could learn a great deal through participation in the European conferences. He was warmly received when his books started to be distributed in Europe. Above all, his *Quality Control Handbook* (first edition came out 1951 and the second 1962) had become a source of inspiration for many managers in the field of quality. The positive reception was also reinforced when it became well known that Juran was born in Europe.

At many of the European conferences, Juran contributed presentations that were greatly appreciated. In a committed way he presented new thoughts and ideas that stimulated the audiences in their own work. His presentations always had a practical basis, and they were very well prepared. Many of them later turned out to be pioneering efforts. His involvement in the EOQC conference in Stockholm in 1966 became historic.

Also at the EOQC conference in Paris in 1981, Juran made a presentation in which he went into the development in Japan. He described the development as a "quality revolution". In a graphical manner he showed how Japan had caught up with and later passed the West (see Chapter 7). The competitive edge of the Japanese developments, according to Juran, would caused the industry in the West to significantly fall behind in competition with the Japanese. At the beginning of the 1980's it was clear to industry leaders, both in Europe and in the United States, that Juran was right. They then began to concern themselves with quality in a completely different way than before. As the title of one of his presentations, "Product Quality: A Prescription for the West", indicated, Juran clearly explained what needed to be done to succeed in competition with the Japanese.

Twenty years after the first conference in Stockholm, it was time for Sweden to arrange another European conference. It was in 1986. Being responsible for the content and program, it was obvious to me that Juran should be invited as a speaker. He agreed and gave

the closing presentation. The title was, "Strategic Quality Planning - An Integrated Approach to Quality Leadership".

Juran's last appearance in connection with conferences in Europe was in Dublin in 1990. The title of his presentation was, "Quality: A Newcomer to the Business Plan". He discussed how top management should involve themselves in order to achieve excellent results. The results achieved in some US companies had made Juran more optimistic about the development. He ended his speech with the belief that "Made in the USA" in the 1990's would become a symbol of "World Class Quality". Juran's prediction has been realized to a large extent, when considering the outstanding results that many US companies have achieved through structured improvement work under the slogan and concept of Six Sigma. As a matter of fact, the foundation for this approach was laid by Juran in the beginning of the 1980's when he helped Motorola with a comprehensive improvement program that became very successful.

SIGNIFICANT IMPACT ON THE DEVELOPMENT IN SWEDEN

Joseph Juran's participation in the European conferences led to many invitations to him to come to Europe for lecturing. According to his memoirs he went on 178 tours abroad taking him to 34 countries, in which he gave seminars and training courses. Most of these tours went to countries in Western Europe. In addition to Sweden, he regularly visited France, Holland and the United Kingdom. He was in Sweden 31 times.

According to his memoirs, Juran visited Sweden 31 times (Joseph M Juran, Advocate for Quality, 2003).

Sweden

I made thirty-one visits to Sweden; the sponsor was Dr. Lennart Sandholm, a private consultant who had been corporate quality manager for Electrolux. (He grew to become one of the leading consultants in Europe and the leading world authority on managing for quality in developing countries.) It was a joy to work with him – he was a superb organizer and his integrity was absolute. We usually held the events in the Engineers' House in Stockholm and occasionally elsewhere in Sweden.

From 1972 Juran came to Sweden every year and lectured under the auspices of Björklund & Sandholm. To begin with, his one-week management course was given once a year, but an increased interest led to twice a year. The participants were almost exclusively from in-

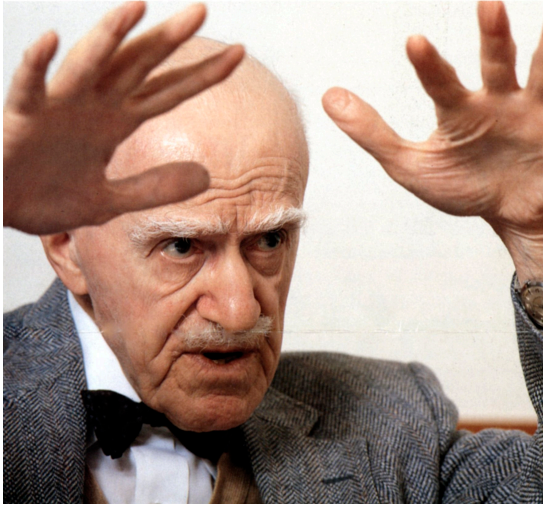
Juran's lectures in Sweden had a major impact on quality in Swedish industry. He inspired thousands of managers to work in a better way. Juran's visits to Sweden were not limited to giving public courses and seminars. He also visited companies (among them Bofors, Electrolux, Pharmacia, SAAB, and Volvo), where he gave lectures and advice to management. I had the great pleasure to escort him on these visits which certainly contributed to my development. When he met with company management he always asked about the company's three most serious quality problems. If Juran didn't get a concrete response to his question it meant to him that there was a great ignorance among the managers on the quality of the products. Juran advised me to ask the same question when I met with company managers.

Juran had a magnificent ability to captivate his audience. All participants in his courses and seminars listened to him with the greatest interest, even if the lectures lasted for five days. His lectures were very well structured. They often started with examples from his own consultancy work. On the basis of these examples (well documented in the course materials) he drew widespread conclusions on the subject in question. This was a methodology, which was very much appreciated by those who were involved in practical work. They could easily relate Juran's message to their own work and find useful ideas for further development. To start with real examples was another advice he gave to me.

Juran captivated his audiences completely without noticeable means. He sat at an overhead projector all the time. While he spoke he wrote down keywords on a roll of transparent film. He sometimes supplemented his presentations with visual aids, that the audience had access to in their documentation. Juran had the view that the participants in his courses and seminars should have access to good documentation that they could use as reference material when they returned from the training. In the longer programs his two books, "Quality Control Handbook" and "Managerial Breakthrough" (Juran's pioneering book on improvement work) were included in the documentation.

Punctuality was very important to Juran. He always started his lectures at the time announced, even if the room was not fully occupied. This encouraged everyone to be on time for the following sessions. A signal always rang five minutes before he was supposed to finish the session. Punctuality was also important when there was a break.

It was also important to Juran that everybody attending a course would have the opportunity to have discussions with him on a one-to-one basis. At one-week courses with 50 to 60 people, the participants were divided into smaller groups, which were then invited to sit at Juran's table during meal times. This was not only at lunches, but also at breakfasts and dinners. These meetings gave Juran ideas that he later would refer to in his writings and lectures. Often, he recorded what he considered to be interesting. These notes were then put into his files, providing important material for the next edition of his handbook.



Juran had the ability to captivate his audience.

GREAT DEMAND LED TO “LECTURES BY ELECTRONIC MEANS”

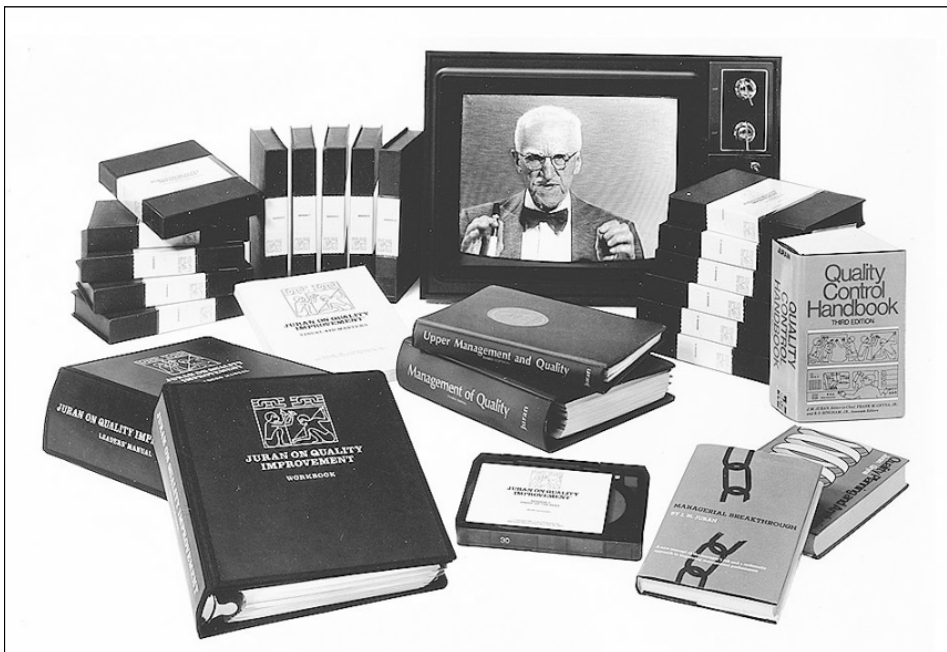
Around 1980, when many business leaders were aware that the Japanese competition was forcing them to do something to improve quality, I remember Joseph Juran saying that he got so many requests that it was impossible for him to manage them. The solution was "lecturing by electronic means". Thus he began preparing video programs. In order to obtain information on how these were perceived, he showed extracts to the participants in the course "Management of Quality". However, he was careful that this would not interfere with the ordinary course program. Hence, he showed these during one of the evenings in the course week. The participants were given evaluation sheets to fill in. The general feeling was that he was not the same on the video. He did not appear like he used to be when lecturing, but seemed to be heavily controlled by scripts. Juran came back at the next course occasion and tested a revised version on the participants. Juran was now on the video in a way that we used to see him. For these videos new equipment contributed elegantly by transferring Juran's hand writings on the screen of the overhead projector to the videotape.

In 1981, Juran launched the first video based training. As he saw the companies' clear need to improve the quality of their products, he focused on systematic improvement work. The title was, "Juran on Quality Improvement". It consisted of a package - besides 16 video cassettes, a workbook for participants, a manual, and supporting literature for trainers. The

JOSEPH JURAN - AN EXCEPTIONAL MENTOR

idea was that the material would be used by teams working with improvement projects. The teams were given advice and support in the entire improvement process. The new training material was very successful. Many companies made significant quality improvements, as was the case with Motorola. To Motorola, the material was an important tool in their improvement work (later known as Six Sigma).

Electrolux translated the material into Swedish. It contributed significantly to the company's improvement program, "QUALITY 84", becoming successful. The program, in which the CEO, Anders Scharp, was much involved, was launched in 1981. An objective was clearly identified, halving the existence of external failures in three years, i.e. to 1984. It was Björklund & Sandholm that provided the material since the Juran Institute had appointed us as the sole representative throughout the Nordic region of Europe. In addition to Electrolux, several other companies acquired the material from us - Bulten, FFV, Holmen, Iggesund, Kockums, Korsnäs, Leo, Set Control, SCA, SKF, Unifos, Viggo, Volvo. We supplied the material even to companies outside Sweden, including Brown Boveri, Du Pont, Outokumpu, Neste, Partek, Saab-Valmet, Suchard, Valmet, Wärtsilä.



The training package "Juran on Quality Improvement".

JOSEPH JURAN - AN EXCEPTIONAL MENTOR

After the success with, "Juran on Quality Improvement", Juran developed two other video-based training programs, "Juran on Quality Planning", and, "Juran on Quality Leadership". The latter program included interviews with business leaders who were successful in their improvement work, among them Robert Galvin of Motorola.

Since 1983, the Juran Institute annually held two-day conferences (called IMPRO conferences), where the companies using "Juran on Quality Improvement" shared their experiences. At each conference one company was usually highlighted. The opening presentation was made by the company's top executive. Companies that were popularly featured in this manner were Motorola and Electrolux with Galvin and Scharp as main speakers, respectively. The IMPRO Conferences were greatly appreciated. We organized study tours which included participation in these conferences, as well as visits to companies that worked successfully with quality improvements. The conferences were held alternately in Chicago and Atlanta. At the conference where Galvin took part, I had the opportunity to speak with him. It was on Juran's initiative.



The participants in our study tour to the IMPRO Conference in Chicago 1986.

An interesting episode was at the conference in 1988, held at the Hyatt Regency O'hare Hotel in Chicago. The hotel happened to be used by the Vice President, George Bush (the elder), when he visited Chicago during his presidential election campaign. The hotel announced that Bush would arrive in the afternoon. The hotel guests, who assembled in the hotel lobby to see Bush, were supplied with campaign boards containing the text "BUSH QUAYLE" (Dan Quayle was the vice president candidate). Bush came, and shook hands with everyone. Some of those who participated in our study tour received a letter from the hotel general manager in which he kindly asked for a change of room for the Bush contingent. I remember someone saying that he would preserve the letter framed in his office. It is rare that an American Vice President would like to move into your place. As you know, the election was successful for Bush.



Swedish participation in the US presidential campaign in 1988.

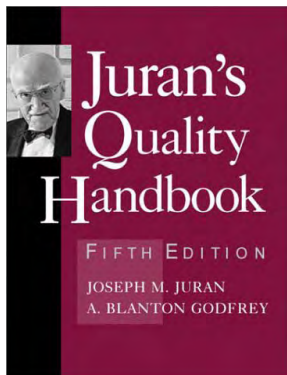
CONTRIBUTIONS TO JURAN'S "QUALITY HANDBOOK"

Already before I left Electrolux, Juran asked me to write a chapter on quality in the household appliance industry for the third edition of his "Quality Control Handbook". The third edition was published in 1974. My chapter with the title "Household Appliances" was mainly based on my experience with Electrolux (see Chapter 1).

During the years after the publication of the third edition there was a substantial development of the quality profession. This led to a problem for Juran when he planned for the fourth edition. The content would swell enormously. In order to be able to keep the volume unchanged (about 1,800 pages), Juran chose to bring together the various industries in groups with similar conditions - assembly industry, process industry, etc. Juran asked me to write two chapters for the new edition. One was related to quality in the assembly industry, and the other to quality in developing countries. Due to lack of time, I declined the first chapter, but accepted the other. Therefore I wrote the chapter "Developing Countries and Quality" for the fourth edition that was published in 1988. For the fifth edition, which was

published in 1999 under the name, “Juran's Quality Handbook” I made an update, entitled “Quality in Developing Countries”. For the content, reference is given to Chapter 11.

It was very stimulating to contribute to Juran's handbook when it had become the international reference book in the area of quality. In addition, it was interesting to see how Juran carried out a book project of this size in cooperation with the publisher (Mc Graw-Hill) in a very structured way.



Blan Godfrey was co-editor in the fifth edition of Juran's Quality Handbook.

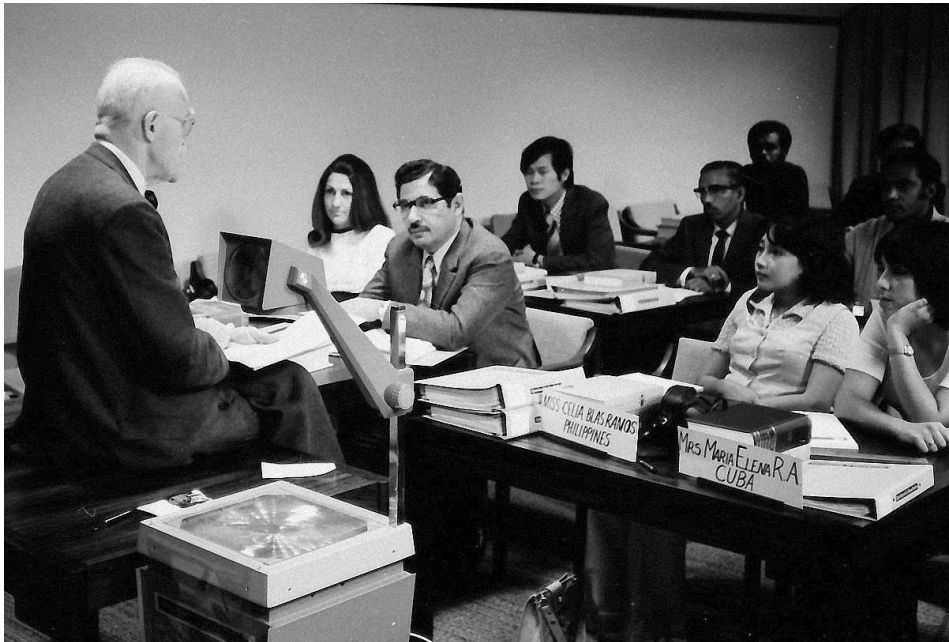
"I WANT TO MEET THESE PEOPLE"

As mentioned in Chapter 5, the United Nations Industrial Development Organization (UNIDO) gave me the assignment to carry out an extensive training in quality for developing countries. The training, financially supported by the Swedish International Development Authority (SIDA), was held in Sweden. When I told Joseph Juran about the training program, he was very interested. He offered immediately, free of charge, to come to Stockholm to meet and have discussions with the participants. These discussions with the participants, who came from Africa, Asia and Latin America, were very interesting.

Juran was obviously pleased with the meeting. That is why he offered to come back to the course that was held the following year. He took the opportunity to come to Stockholm over a weekend when he was still in Europe. As a result, several training groups had the privilege of listening to him. In addition, they got their own copy of Juran's handbook (included in course documentation) signed by him. That was something to show to their colleagues on their return home to their work after the training in Sweden. Juran never asked for any remuneration for his contributions.

JOSEPH JURAN - AN EXCEPTIONAL MENTOR

There were many interesting discussions at these meetings. I well remember a discussion on what standardization had to do with quality. In many developing countries, the national standards body played an active role in the area of quality. Thus, a number of the participants had this background. Juran was skeptical about this development when it came to quality in companies. When Juran had discussed the different phases of industrial development from a primitive economy to the production of advanced products for the international market, he got, in his own words, "a flash of illumination" from a young man from the Jamaican Bureau of Standardization, Patrick Folkes. With the help of a graphic figure Patrick discussed the change in the role of standards organizations in the different stages of industrial development, related to what Juran had just presented. In the following discussion the graphic figure was further elaborated. The discussion led to a pioneering article on standardization and quality¹⁰.



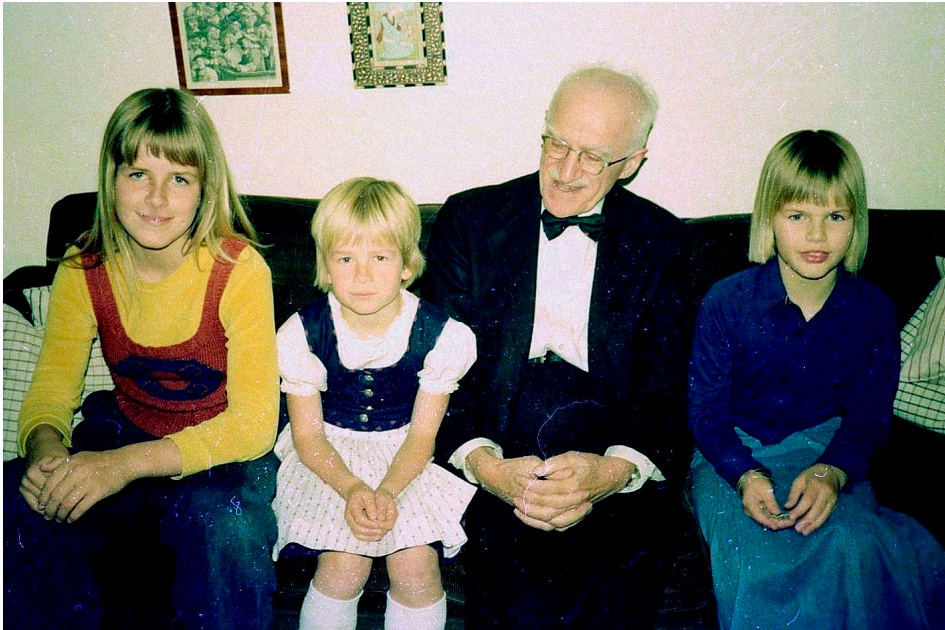
Juran lecturing in the first UNIDO course in 1973. In the front from left Watbeqa Yousif (Iraq), George Sheikh Mayya (Iraq), Celia Ramos (Philippines) and Maria Rodriguez (Cuba). I have told about Watbeqa and Maria in Chapter 5.

10 J. M. Juran, "Standardization and Quality", *Quality Progress*, February, 1975, pp. 4, 5.

MORE THAN 40 YEARS OF CLOSE CONTACT WITH JURAN

As previously mentioned I met Joseph Juran for the first time at the EOQC conference in Rotterdam in 1965. After that I had for a number of years close contact with him. We met at conferences in Europe, USA, and Japan. We worked together with training, usually in Sweden.

When we met he used to start by asking about the children. After that, quality would probably be the topic. He often presented new ideas about which he wanted to get my comments. This was the case with the concept that came to be known as the "The Juran Trilogy". I well remember that, when discussing this, he made an outline on a piece of paper.



"Grandpa" Juran with my daughters Petra, Malin and Åsa at a visit in our home in 1974.

JOSEPH JURAN - AN EXCEPTIONAL MENTOR

Juran showed a surprising ability in table tennis at a visit to our home. He beat me easily.



The increased interest in quality among business leaders at the end of the 1970's created an increased demand for Juran's services. He realized that he needed an organization to cope with this. In addition, the video based training programs called for other resources. Initially, he had been working on his own, with administrative support by his wife. I remember his earlier comments about an organization with employees, which would mean that he would not have time to devote himself enough to quality. Much time had to be spent on managing the employees. Having a company would also mean that he would be controlled by the company. But now the circumstances were different. A company named Juran Institute was founded in 1979 with Juran as Chairman and Howland Blackiston as President. Blackiston, who was the husband of Juran's granddaughter, Joy, was responsible for the graphical design of the products, marketing, public relation, etc.

One of the first employees in the new company was Frank Gryna, a very experienced and knowledgeable professional with a background in both academia and industry. Gryna had earlier contributed to Juran's handbook. Juran and Gryna had also co-authored the textbook "Quality Planning and Analysis".

When Juran was not able to accept lecture invitations due to a lack of time, he sometimes referred them to me. As a result, I lectured in Australia (see Chapter 5) and in the Republic of Korea as a replacement for Juran. Another assignment was for the US elevator manufacturer, Otis. I made an evaluation of the activities of the European principal plant located in Milan, Italy and then presented the result to the management at the European headquarters in Paris, France. It was an interesting task.



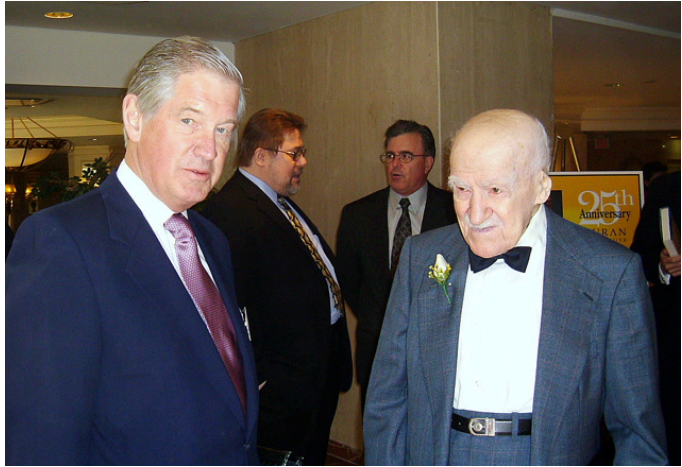
The mentor with his disciple.

The assignments Juran gave to me showed that he had a great deal of confidence in me. This developed to the point of having serious discussions about me moving to the USA in order to work for Juran Institute. After much reflection, I decided to stay in Sweden and continue further work for Björklund & Sandholm.

Juran's last visit to Sweden was in 1990. But contacts continued both professionally and privately. Thus, he participated in a seminar at the Royal Institute of Technology, Stockholm in 1997. This was held through satellite communication.

In 2004 Juran reached the age of 100 years, more specifically on Christmas Eve. His birthday was celebrated, however, on May 6 at an event called Juran Celebration in Stamford, Connecticut. His wife celebrated 100 years as well. In addition, it was 50 years since he lectured in Japan for the first time and 25 years since he founded his consulting and training company Juran Institute. 200 personally invited guests attended, among others my wife

JOSEPH JURAN - AN EXCEPTIONAL MENTOR



*Celebration in Stamford,
Connecticut in May 2004.*

and myself. Among the guests were family members, close friends, colleagues, and company executives. Because of my long friendship with Juran, I was invited to open the long line of speeches, that honored Juran's significant importance in the development of the quality profession. My speech is included at the end of this chapter.

I mentioned in my speech that Juran is the person, outside of my family, who has had the greatest impact on my life. Essentially, this is also the case in my private life. During all these years Juran was a guest in my home and I in his on numerous occasions. These visits became very memorable. I remember well when he told us with great sensitivity about his emigration to the USA when he was 8 years old and how he grew up in poor conditions in the outskirts of Minneapolis, along with many other immigrants, many of them from Scandinavia. We were all very moved. He followed our children's lives with a genuine interest. He gave them educational toys in their early childhood, and followed with great attention how they were used. When we met with Juran during the celebration event, he immediately asked about the children and the grandchildren.

Juran received an honorary doctorate at Luleå University of Technology in the north of Sweden. It was an honor that he deeply deserved, which confirmed his close and long-standing connections with Sweden. In addition, it is clear proof of the establishment of the quality profession in the academic world. The initiative was taken by Professor Bengt Klefsjö. It was with great pleasure that I agreed to participate as a link between the University and Juran.



**Greetings on the Occasion of the
25th Anniversary of Sandholm Associates AB**

It is a privilege for me to congratulate Sandholm Associates AB on the occasion of its 25th anniversary.

My association with Dr. Sandholm goes back to the decade of the 1960s. He was then Corporate Quality Manager of AB Electrolux, which became one of my clients. I was impressed by the innovations he brought to that job. (He later graciously documented them in the third edition of my Quality Control Handbook.)

In turn he was fascinated with the idea of consulting as a career, and we discussed the idea on several occasions. It came as no surprise to me when he did launch a consultancy in quality, in collaboration with Dr. Olle Björklund.

As part of that launch, Dr. Sandholm agreed to organize the training seminars which I then conducted for Scandinavian audiences over many years. This expanded collaboration enabled me to witness the evolution of the new consultancy. I was impressed by Dr. Sandholm's focus on customer needs, as evidenced by the thoroughness of his training materials and by his contributions to the literature on managing for quality.

I was equally impressed by his work with developing countries. He had persuaded the Swedish government to support training courses in Sweden for selected young managers from developing countries. Those training courses, in which I occasionally participated, led to conferences being held in various developing countries, and to making Dr. Sandholm the leading world authority on managing for quality in developing countries.

Such achievements, along with a reputation for total integrity, have contributed to Dr. Sandholm's status as one of the leading quality consultants in the world. I salute these achievements, and offer my best wishes for the future of Sandholm Associates AB.

Juran's congratulation message at the 25th anniversary of Sandholm Associates in 1996.

JURAN AND JAPAN

Juran was very impressed by the quality development in Japan. He lectured there for the first time in 1954. This started, in his own words, a "quality revolution" (see Chapter 7). He often referred to the Japanese success.

A question that was often asked of Juran when he lectured on the Japanese development was about the importance he had on this development. Juran's response was "I have not been the important factor, nor has Deming. The most important factor was the Japanese executives, themselves. They listened to us and acted accordingly. We have lectured to many US executives, but they didn't do anything." This unpretentiousness from Juran contrasts to Edwards Deming's praising of his own in NBC's acclaimed television documentary "If Japan Can, Why Can't We?" from 1980. Deming was highlighted as the sole person whom the Japanese had to thank for their successes in quality. Juran was not mentioned at all (see Chapter 10).

NBC's documentary created a myth about Deming that became widely-spread. Robert Cole addresses this myth^{11 12}.

A contributing factor to the myth about Deming was that the Japanese Union of Scientists and Engineers (JUSE) set up two national quality awards with his name (one for companies, one for individuals). This was done when Deming was in Japan. The funding was from Deming's fee, resulting from a consequence that did not allow him to take any money out of the country. The Deming Awards later became renowned. In this way Deming's name became widely known. In 1966, JUSE set up a new quality award which would be given to companies that had been given the Deming Award for the second time. JUSE wanted to call the the new award the Juran Award. But through a misunderstanding between JUSE and Juran it did not materialize.

Junji Noguchi was the Director of JUSE, with whom I had the pleasure of knowing well. In an article in Business Week¹³, he very clearly states "Juran was more important to Japan than Deming." and "Juran applied quality to everybody, from managers to clerical staff."

11 Robert Cole, What Was Deming's Real Influence? Across the Board, February, 1987, pp. 49-51.

12 Robert E Cole, Managing Quality Fads, Oxford University Press, 1999, pp. 49-51.

13 Otis Port, Dueling Pioneers, Business Week, December 2, 1991, p. 24.

JURAN'S CONTRIBUTIONS TO THE KNOWLEDGE BASE OF THE QUALITY PROFESSION

During Joseph Juran's long professional life fully devoted to quality, his influence on the quality profession has been enormous. His clear thinking, his analytical ability and his wonderful way to communicate (both orally and in writing) explain his great influence on the existing knowledge base. The following are a few more significant contributions.

The meaning of quality

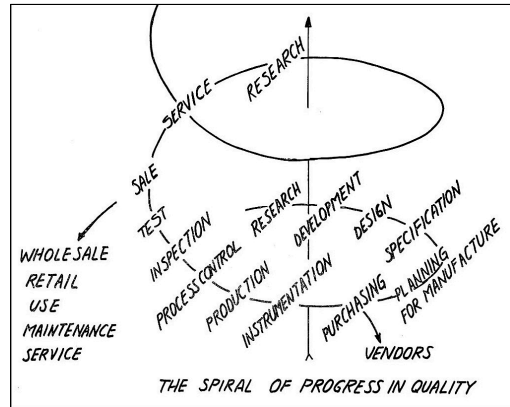
Juran early expanded the meaning of the quality concept from "compliance with requirements" to "fitness for use". In this he saw two aspects of product quality, the first was "freedom from deficiencies", the other "product features". Work on improvement of quality was in the past focused on reducing the amount of failures. It has since developed to also cover the characteristics that make the products meet the needs and the expectations of the customers in a better way. Juran later added a new quality dimension. He introduced the concept of "Big Q". This included much more than product quality or, "Little q", by including quality of supporting functions such as financial accounting, invoicing, training, purchasing, human resources, etc. The concept of "Big Q" contributed significantly to the development of the concept of Total Quality Management (TQM), both in the areas of goods and services.

Involving all functions

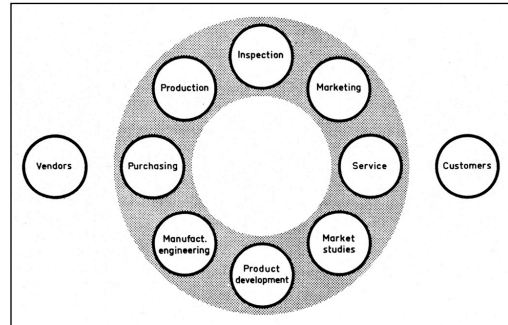
Very early Juran changed focus on quality from inspection and testing to all company functions affecting product quality. He did this by introducing "The Spiral of Progress in Quality". The spiral showed all functions that had an impact on quality.

When starting my quality career, Juran's Spiral became a significant source of inspiration for working with the entire flow of activities from market studies to a complete product on the market. Within Electrolux I introduced this message by means of an image which I called "The Quality Circle". With reference to the Circle, I stressed the need for cooperation and coordination of all activities affecting quality. Without an active involvement by management the result would not be so good.

Juran's "The Spiral of Progress in Quality".



"The Quality Circle" shows the company functions directly affecting product quality. This concept was introduced at Electrolux.



Focusing on the most important

Early in his consultancy work Juran found that it was mainly a few factors that contributed to more failures than other factors. He talked about "the vital few and the trivial many". At a company visit in 1941 he came into contact with the Italian economist Vilfredo Pareto's work. This led Juran to name his observation "The Pareto Principle". Juran later found that he had referred to the wrong person¹⁴. A few years ago, Noriaki Kano undertook an initiative in the International Academy for Quality to change the name to "The Juran Principle". The term, "The Pareto Principle", was so well established, however, that Kano's initiative could not be realized. When Juran found that the improvement work should also draw attention to "the trivial many", he named them "the useful many". He began to talk about "the vital few and the useful many".

¹⁴ J. M. Juran, "The Non-Pareto Principle; Mea Culpa", Quality Progress, May, 1975, pp. 8, 9.

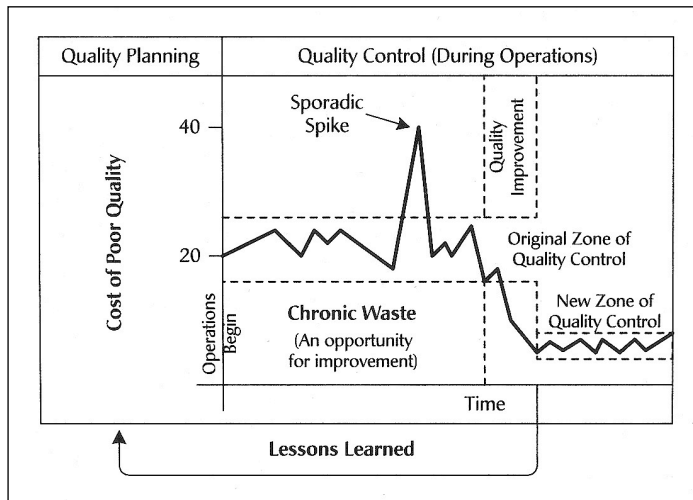
Breakthrough and control

In his book, *Managerial Breakthrough*, published in 1964, Juran introduced the concept of breakthrough as a complement to the concept of control. Breakthrough was a decisive change for the better, that is, "to change the status quo", while control was "to keep the status quo". Breakthrough focused on the chronic problems while control focused on the sporadic problems. Juran developed a clear structure for tackling the chronic problems in a project form. Much later this became the core in the improvement concept, Six Sigma.

The Juran Trilogy

In addition to breakthrough and control, Juran added planning as one more dimension some 20 years later. Therefore, he meant that "quality management" comprised of three processes: "quality planning", "quality control" and "quality improvement". The third process was the same as breakthrough. This concept came to be known as The Juran Trilogy¹⁵.

A good way to get upper managers to understand "quality management" was, according to Juran, to refer to "financial management" which contains equivalent processes: "financial planning", "financial control" and "financial improvement".



The Juran Trilogy.

15 J. M. Juran, "The Quality Trilogy: A Universal Approach to Managing for Quality", *Quality Progress*, August, 1986, pp. 19-24.

Cost of poor quality

Already in 1951, in the first edition of his *Quality Control Handbook*, Juran discussed what later became known as the cost of poor quality. Juran gave this concept great importance by placing it in the first chapter of the book. The title of the chapter was "The Economics of Quality", which showed that he went beyond just cost aspects. Juran used the terms "avoidable costs" and "gold in the mine". When Juran spoke about the cost of poor quality, he used to refer to the hidden plant: "Every plant has a hidden plant producing waste goods".

SECTION 1	
THE ECONOMICS OF QUALITY	
BY J. M. JURAN	
Quality Characteristic	2
Rise of Precision	3
Growth in Size and Complexity of Organization	4
The Need for a New Approach to Quality Control	5
Quality of Design Distinguished from Quality of Conformance	6
Balance between Cost of Quality and Value of Quality	7
Economics of Quality of Design	9
Economics of Quality of Conformance Competition in Quality	12
Product Design as a Means for Com- petition in Quality	15
Knowledge of Market Quality as a Means for Competition in Quality	17
Development of a Positive Quality Reputation	22
Advertising of Quality	24
Guarantee of Quality	27
Avoidance of Notorious Quality Fail- ures	29
Cost of Quality—Avoidable and Un- avoidable Costs	30
Cost of Quality—The Basic Manu- facturing Process	30
Cost of Quality—Inspection, Sam- pling, and Sorting	31
Cost of Quality—Quality Control	33
Cost of Quality—Avoidable Costs— "Gold in the Mine"	34
Maldistribution of Quality Losses	37

Contents of Section 1 in J. M. Juran, Quality Control Handbook, 1951.



*"Every plant has a hidden plant producing waste goods".
(From Juran "Management of Quality")*

Operator controllable and management controllable defects

In the 1960's (and even later), there was a tendency for managers in industrial companies to blame production operators for quality problems. This was done in the so-called "Zero Defects" movement which was popular in the US defense industry (see Chapter 10). Juran made the responsibilities clear by introducing the difference between "operator controllable" and "management controllable" defects¹⁶. He showed that usually only twenty percent of the defects were caused by operators. Most of the defects were caused by management. By his reasoning, Juran gave a very critical analysis of "Zero Defects" programs¹⁷.

Six Sigma

Motorola introduced Six Sigma in the beginning of the 1980's. The tough Japanese competition led Robert Galvin to launch a comprehensive program aimed at a substantial improvement in the company's profitability. Juran was called in as a consultant and trainer. He gave advice on three important areas: 1. Work with chronic problems; 2. Start a project-oriented improvement work; 3. Organize a "steering arm" (for the management's control of improvement work) and a "diagnostic arm" (a project team for each problem with respon-

16 J. M. Juran, "Operator Errors - Time For A New Look", Quality Progress, February, 1968, pp. 9-10, 54.

17 J. M. Juran, "Quality Problems, Remedies and Nostrums", Industrial Quality Control, June, 1966, pp. 647-653.

JOSEPH JURAN - AN EXCEPTIONAL MENTOR

sibility for analyzes and proposals for remedies). Motorola later gave this comprehensive improvement program the name, Six Sigma. Without Juran's participation Motorola would probably not have been so successful with its Six Sigma work, and this concept may not have gotten the widespread coverage seen today.

Robert Galvin receives the Juran Medal from the hands of Juran in the year 2001. The Medal was founded by the American Society for Quality to be given to a company executive who has successfully implemented quality principles. Galvin was the first recipient of the Medal.



Speech to Dr. Joseph M Juran

Given at the Juran Celebration in Stamford, Connecticut on May 6, 2004

Dear Dr. Juran,

Your thoughts and writings have had a tremendous impact on where the science of quality is today. Quality professionals all over the world agree to this view. I am fortunate to have had you as my mentor for almost four decades. You have meant a great deal for me, professionally as well as personally. During the years I have had the privilege and the pleasure, of working closely with you. New ideas have been tested and discussed. This has always been very inspiring. It is with great satisfaction I have noticed that you have shown great confidence in my work and me. For me it is a great pleasure to look back today and give some personal reflections.

First meeting 1965

The first time I met you, Dr. Juran, was at the European Quality Conference held in Rotterdam, Holland in 1965. Having been the Corporate Quality Manager for the Swedish household appliance manufacturer Electrolux since 1963, I was invited to speak on the approach to quality taken by Electrolux. Supported by top management, I had the privilege of changing the prevailing inspection oriented culture to a preventive and improvement oriented culture. In this work I was very much stimulated and influenced by your writings, mainly the second edition of your Quality Control Handbook, published in 1962, which became an important source of information and inspiration for me.

Mr. Carl -Anker Kofoed (at that time Quality Manager of the Danish manufacturing company Danfoss) introduced me to you at the Rotterdam Conference. This was certainly a great moment in the life of a young quality practitioner. I told you on that occasion that I was going to the United States a month later in order to study quality management for a period of seven months. You asked me then to call you when I arrived in the States. I called you.

This resulted in my visiting your home several times. This was a short journey, since you lived in New York City and I studied at the Rutgers University in New Jersey. These visits to your home laid the foundation for a long friendship and fruitful cooperation. My visits to your home gave me also the great pleasure of getting to know a charming lady, Mrs. Sadie Juran.

European Conference in Stockholm 1966

As member of the Board of the European Quality Conference to be held in Stockholm, Sweden in 1966, I invited you, Dr. Juran, to be a speaker.

JOSEPH JURAN - AN EXCEPTIONAL MENTOR

The Stockholm conference became an historical conference, since it was the first time the growing Japanese development in quality was discussed outside Japan. You came more or less directly from a visit to Japan; highly impressed by the way the Japanese improved quality. In particular improvement work done by workers in teams, what later became called Quality Circles, attracted your interest. You described in detail how a group of young female workers in an assembly department for car radios improved the attachment of knobs.

Your presentation at the conference, Dr. Juran, received a lot of attention. It led to a special, extra session dealing solely with the Quality Circle story in Japan, being set up. Among the contributors in this session, besides you, were Dr. Kaoru Ishikawa. You made a prediction at that occasion, still fresh in my memory, "The way the Japanese are working now, they will become the world leaders in quality twenty years from now; if we in the West are not doing anything". Your prediction was correct.

In connection with the conference, you visited the headquarters of Electrolux, where you gave a highly praised seminar for top management. The seminar inspired in a tangible way the quality development of the company.

Many visits to Sweden

You recall in your memoirs that you paid 31 visits to Sweden. The background was that I in 1971 left Electrolux to become a quality consultant. Inspired by you, Dr. Juran, I found this to be a challenging career. When I informed you about my plans, you immediately responded: "Good. Then I will come to Sweden to give my courses and seminars. You organize them!" It turned out in this way, which meant that I came in a close contact with your thinking.

From 1973, during a period of almost two decades, you came to Sweden every year - most years two or three times. Your lecturing in Sweden had a great impact on the quality development of the Swedish industry. You inspired thousands of managers and quality practitioners to work in a better way to improve quality and increase profitability. Your visits were not limited to public courses and seminars. They also included visits to major Swedish companies for consultation and lecturing.

You had the talent to captivate an audience. Everybody attending a course or a seminar listened to you with the greatest interest, even if the course lasted for a full week. Your lectures were well structured, starting very often with examples from your own consulting work, and thereafter generalizing a conclusion on the topic in question. This was an approach that was very much appreciated by an audience involved in practical work.

You had a wish that my partner (at that time Dr. Olle Björklund) and I did some of the lecturing in your courses. You prepared us for this for some of the topics. It was not an easy task for us, however, since the

JOSEPH JURAN - AN EXCEPTIONAL MENTOR

course contents were very much based on your own practical experience; and the audiences wanted to listen to you, Dr. Juran.

Developing countries

Early in my carrier as a consultant, I got interested in the quality situation of industrial companies in developing countries. In order to get support for my idea of offering training in quality for these countries, I approached UNIDO (United Nations Industrial Development Organization), as well as the Swedish governmental agency providing aid to developing countries. The response from the two organizations was positive, which resulted in financial support being granted. This was the starting point for a lot of training programs conducted for managers and engineers in developing countries. The programs ranged from one-day top management seminars to ten-week courses for quality managers. During the years more than 10,000 people from about 100 countries attended these programs.

When I informed you, Dr. Juran, about my plans for these training efforts, you became very interested. You offered to come to Stockholm, free of charge, to meet and have discussions with the first group of young quality practitioners who came from different countries in Africa, Asia, The Caribbean and South America. You enjoyed these discussions very much, which meant that you returned to some later courses.

*Based on my own experience, I found your writings very useful to practitioners. For this reason I included your Handbook, as well as the book *Quality Planning and Analysis* by you and Dr. Frank Gryna in the literature of the international training programs. In this way your ideas became widely disseminated in developing countries.*

Contributions to the science of quality

*In your long life devoted to quality, Dr. Juran, your influence on the progress of quality has been immense. Your clear thinking, analytical talent and eminent way of communicating (orally, as well as in writing) help to explain your great influence on the existing body of knowledge in the field of quality science. Some of your major contributions are: *Meaning of Quality*; *The Spiral of Progress in Quality*; *The Pareto Principle*; *Breakthrough and Control*; *The Juran Trilogy*; *Poor Quality Costs*; *Controllability (management vs. operator controllable defects)*; *Video Based Training*; *History of Managing for Quality*; *The Quality Handbook*; *Six Sigma*.*

Dr. Juran, you are the person, outside my family, who has had the greatest influence on my life. As a small token of my sincere gratitude for all you have given me, it is my great pleasure at this moment to give you a copy of my latest book. The book, unfortunately in Swedish, contains many references to you, Dr. Juran. In addition, I will give you the manuscript of an article to be published this month by ASQ Quality Press in the book "Best On Quality". This year's edition is solely devoted to your contributions. The title of my article is "Dr. Joseph M. Juran – A True Mentorship In Retrospective". Included in this binder are also

JOSEPH JURAN - AN EXCEPTIONAL MENTOR

the two first articles of four dealing with your life and contributions published in the Swedish magazine Kvalitetsmagasinet (The Quality Magazine).



SAMURAI WITH
SEVEN TOOLS

(K.H.)

Seven quality improvement tools were inspired by the samurais. (Noriaki Kano)

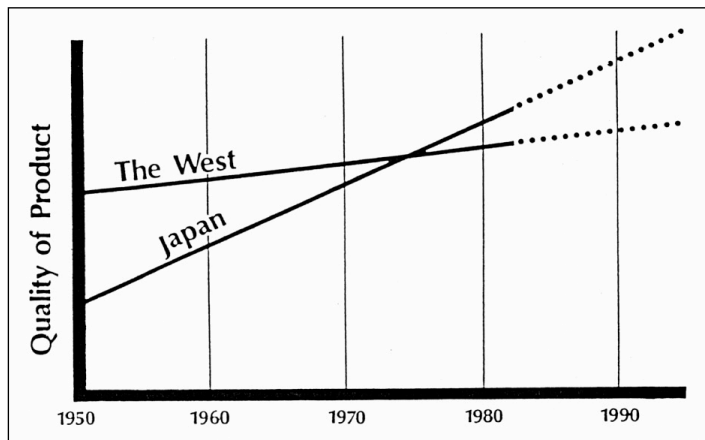
INSPIRATION FROM JAPAN

JAPAN SHOWED THE WAY

In Chapter 1 I have informed about my employment as laboratory engineer at Elektrohe-
lios in 1957. The task included, among other matters, to test new products. I remember
very well the situation when the responsible designer got the recommendation to attach the
label "Made in Japan" to his design. The reason was that the test result was not at all good.
At that time Japanese products were considered to be of poor quality. Since then an im-
pressive improvement of the Japanese product quality could be seen. A designer getting the
same recommendation nowadays would consider it to be a great credit.

Joseph Juran called the development in Japan a "quality revolution". After his first visit
there 1954, he returned several times to give lectures to company managers. His impres-
sions were disseminated by lectures and articles¹⁸.

*Comparison of the qual-
ity development in Japan
and The West presented
by Juran at the EOQC
Conference in Paris in
1981.*



18 J. M. Juran, "Japanese and Western Quality A Contrast", Quality Progress, December, 1978.

An organization that became important to the Japanese quality development was JUSE (Union of Japanese Scientists and Engineers). JUSE was formed in 1946 on the initiative of the Japanese Government to be a part of Japan's recovery after World War II. The aim was that industrial leaders would come together for exchanging ideas and experiences in the process of rebuilding the Japanese industry. The first Director of JUSE was Kaoru Ishikawa's father Ichiro Ishikawa. JUSE invited Edwards Deming and Joseph Juran to lecture on quality in the 1950's. These lectures had a decisive importance to the Japanese quality development. Deming contributed by highlighting statistical methods, while Juran drew attention to issues concerning leadership and management. JUSE has, over the years, contributed to the development of the industry by organizing training courses and conferences, and by publishing books and magazines.

Early in my career as a consultant, I got into useful contacts with JUSE. Contributing to this was my cooperation with Juran, as well as my participation in international conferences. On my first visit to Japan in 1976, I was met at the airport by JUSE's Director, Junji Noguchi. JUSE had prepared an interesting program for me, in which study visits to industrial enterprises were an essential component.

The first true contact with the quality development in Japan was at the EOQC Conference in Stockholm in 1966. Later on, the conference was considered by the Japanese to be historic as it was the first time the successful quality development in Japan was discussed outside of Japan. The background was Juran's presentation of what he experienced during a recent visit to Japan. He was very impressed by the progress made. In an enthusiastic way he told about young female assembly workers solving the problem of loose knobs on car radios. Juran's presentation resulted in setting up an extra session on the development in Japan. In addition to Juran, some Japanese experts contributed, among them the leading authority, Kaoru Ishikawa. The session was very much appreciated. It was an awakening to many non-Japanese colleagues.

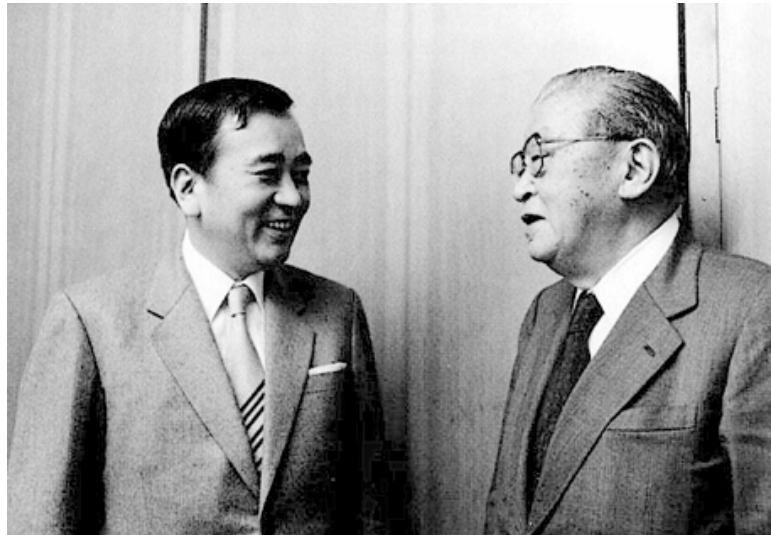
INSPIRING JAPANESE COLLEAGUES

During the years as a consultant, I became acquainted with many Japanese quality professionals. The first one was Kaoru Ishikawa. He meant a lot to the Japanese industrial development. A major contribution was the introduction of Quality Circles in 1962, i.e. groups of manufacturing operators who, after receiving training in improvement tools, carried out quality improvements within their own working areas. Ishikawa was convinced that employees must be involved in improvement teams in order to improve work processes and strengthen the individual abilities. Ishikawa used the term "QC Circle" in English.

In the beginning of the 1980's, it became clear to companies in the West that they had been passed by their Japanese competitors. A measure often taken was to introduce Quality Circles (see Chapter 10). It was for some time a fashion that didn't lead to any significant improvements, because Western management falsely thought that they were a panacea for all quality problems. Ishikawa warned about the use of Quality Circles in the West. According to him, there were more effective measures to implement initially. This included a focus on leadership, which the Japanese companies had already accomplished, before introducing Quality Circles.

Ishikawa was the inventor of the Ishikawa Diagram (sometimes referred to as the Fishbone Diagram or the Cause and Effect Diagram) which was often used in improvement work (first in Quality Circles in Japan, later in Six Sigma programs). The Diagram made it possible in a clear way to structure the connection between cause and effect.

I invited Ishikawa to Sweden twice. The first time was in the beginning of the 1980's. He conducted a seminar organized by Björklund & Sandholm and also made a presentation at a meeting organized by the Swedish Association for Quality, which organization I was then the President of. The second time was in March 1986. On that occasion Ishikawa came together with his disciple Noriaki Kano. Ishikawa and Kano conducted a four-day training course "Company-wide quality control" organized by us. The course had been given several times to managers in the Japanese industry. This was the first time the course was given in Europe.



Ishikawa and Kano at the training course in Stockholm in March 1986.

<p>Innehåll</p> <p>Concepts of company-wide quality control What is company-wide quality control? Advantages of company-wide quality control. What is management? Japanese experience vs. Western experience.</p> <p>New product development</p> <p>Quality assurance Quality control and quality assurance. Principles of quality assurance. Progress in quality assurance methods.</p> <p>Statistical concepts in quality control Three categories arranged according to difficulty. Problems connected with utilization of statistical methods in industries. Statistical analysis. Statistical control. Statistical methods and technological advance.</p> <p>Process control</p> <p>QC circle activities QC education for foremen. Basics of QC circle activities. How to start QC circle activities. How to implement QC circle activities. Evaluation of QC circle activities. QC circle activities and supervisory</p>	<p>functions. Why did the Zero Defect movement in USA fail? QC circle activities around the world.</p> <p>Quality control in sales and service Problems connected with company-wide quality control in marketing (distribution and service). Marketing and new product development. Marketing activities and quality assurance. Selecting and nurturing a distribution system. Control of quality in marketing activities. How to start company-wide quality control in marketing divisions and distributors.</p> <p>Quality control in purchasing Quality control for suppliers and purchasers. Ten QC principles for vendor-vendor relations. Specifications for raw materials and parts. Distinguishing company-made parts from supplier-made parts. Selecting and nurturing a supplier. Quality assurance of purchased goods. Control of purchased inventory.</p> <p>Roles of top management in company-wide quality control implementation An appeal to top managers. Misunderstanding common to top management.</p>	<p>What must the top management do? Roles of middle management.</p> <p>Drafting future quality and quality control plans</p>
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Company-wide quality control

Kurslängd
4 dagar

Tidsplan
9.00 – 12.00 Undervisning
12.00 – 13.00 Lunch
13.00 – 17.00 Undervisning

Kursavgift
Kr 8 800

Plats och datum
Stockholm
Ingenjörshuset
Malmsskillnadsgatan 46
3–6 mars 1986

Content of the training course "Company-wide quality control" conducted by Ishikawa and Kano in Stockholm in March 1986. (Björklund & Sandholm's training catalogue 1986)

affecting quality were discussed and action programs made up. New objective were set. This was a form of quality audits carried out by top management.

- Training

Training was addressed to everybody. In addition to a wide range of in-company training activities, there was also a significant range of external training. University education in quality was well developed.

- Quality Circles

The first Quality Circles were set up in 1962. This was a result of that training in quality had reached the production operators. It was found appropriate to involve the operators in quality improvement work by setting up small teams within each area of production.

- Statistical methods

Statistical methods in the work of improving and controlling quality was used in Japanese companies in an orderly way. Tools as histograms, control charts, Pareto Diagrams, Ishikawa Diagrams were widely implemented. The application of statistical methods was to the Japanese an ingredient of decision making based on facts.

- Propaganda on a national level

This propaganda culminated in November every year. November became the Month of Quality. Then many conferences were held. Awards to companies and individuals were distributed.

Ishikawa invited me to Japan to lecture on statistical methods in a training program for engineers from developing countries. I found this remarkable as Ishikawa was highly competent in statistical methodology. Possibly, he wanted to find out what I included in international training courses given in Sweden. It was indeed an honorable and interesting task.

Another contact I had with Ishikawa was when he led a study group of Japanese industrial managers visiting Sweden in 1975 in order to study "Job reform". The background was that pioneering activities to increase the work content on the shop floor went on in Sweden. The purpose was to get away from monotonous tasks at assembly lines and instead set up self-controlling teams. JUSE was responsible for the study group and asked me to prepare a program. I contacted the Swedish Employers' Confederation as this organization was involved in this development. The Confederation contributed positively. The study group visited among others the truck manufacturer Scania. In a closing meeting interesting ideas on the Swedish "Job reform" and the Japanese Quality Circles were exchanged. The study group also included among others, Noriaki Kano and Takanori Yoneyama.

When Ishikawa passed away in 1989, JUSE invited me to contribute to a memory book. It was with great satisfaction I accepted the invitation. My contribution is included at the end of this section.

Noriaki Kano is the Japanese colleague with whom I had my greatest contact. He is known for the so-called "Kano Model", which he developed in order to illustrate customer needs. According to the Model there are three types of needs: implied, stated, and unconscious needs. The Model is now a tool in programs for Six Sigma.

The first time I met Kano was in 1975. He made a study visit to some countries in Europe. JUSE asked me to assist him with his program in Sweden. He was mainly interested in the Swedish consumer movement.

INSPIRATION FROM JAPAN

Mrs. Keiko ISHIKAWA
2-11-1 Tobitakyu, Chofu-shi
Tokyo 182 JAPAN

September 30, 1993

Dr Lennart Sandholm
Bjorklund & Sandholm P.O. Box 28
S-182 51 Djursholm, Sweden

Dear Dr. Sandholm:

We have had some very unusual weather this summer in Japan, I am wondering how it was in your area. Despite all of your busy activities, I hope everything is well with you.

Although my original desire for this book was small and simple- -just to compile my husband's life in my own way- -it turned out otherwise. Many many people generously sent us their heartfelt words about him and involved themselves in gathering detail records and information. With a humble how to them, I would like to express my appreciation for their consideration to this rather private matter of ours.

I do not think that my words are sufficient enough to express the hard work that was required to bring this book to completion. All of you who kindly rendered support and contributions, please accept my sincere gratitude.

The delay in sending you this book was due to the long editorial process, but it seems to have been a blessing. I am very pleased and grateful to be able to let you know that I have recently heard that the American Society for Quality Control has kindly established the Ishikawa Medal and that we have included this last role of my husband in his chronological history.

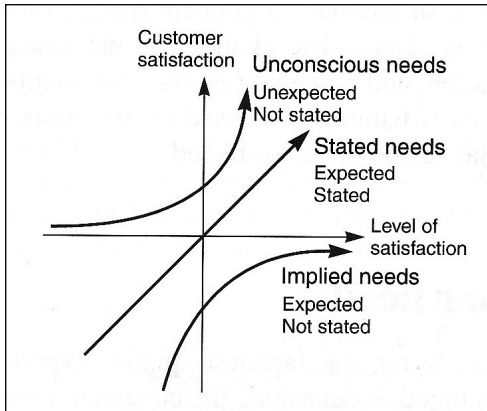
In closing, I wish you continued health and prosperity. On behalf of the entire Ishikawa family, I thank you very much.

Sincerely yours,

Keiko Ishikawa

After publishing of the memory book I received a letter from Mrs. Keiko Ishikawa.

INSPIRATION FROM JAPAN



The Kano Model shows how customer satisfaction is created.

Over the years, a close friendship was developed. We met many times both in Sweden and in Japan, but also in other parts of the world. The friendship also came to include family members.



Family Sandholm visiting Family Kano in Tokyo in 1976.

Kano visited Sweden under the auspices of our company several times. Thus, he conducted a seminar for managers entitled "Profit through quality" in 1984. In connection with the seminar he gave a three-day training course with the title "Quality management". As mentioned earlier, he and Kaoru Ishikawa conducted the training course "Company-wide quality control" in 1986. In 1996 he attended as a speaker our seminar "Quality Without Borders" which was part of the 25th anniversary (see Chapter 2). Kano's latest visit to Sweden was at the end of May 2011 when he was one of the speakers at the conference organized to celebrate the 40th anniversary.

INSPIRATION FROM JAPAN

I had an interesting experience when Kano and I held a joint seminar in Tokyo. Together, we visited some Japanese companies, among them Toyota. This visit made a very positive impression on me. I received the direct impression that quality was something quite natural to Toyota. It was part of the company culture. It was so natural and inclusive that it was not something they talked about too greatly.

In my affiliations with Kano, he has always been very professional and serious. He always tried to understand the background of what was going on. His theoretical reflections were backed up by true examples. Over the years, he gained a substantial experience. This was true not only from experiences in Japan, but from many other countries as well. Thus he was engaged as a consultant to several companies in the USA. He became a Board Member of the large Japanese company Komatsu, a manufacturer of excavators and other construction machinery.

Apart from Ishikawa and Kano, I had many contacts with Yoshio Kondo. He had a Professorship in Metallurgy at Kyoto University, but was involved in quality issues in industry very early in the quality movement. I invited him to Sweden in 1981. He presented a well attended two-day seminar in Stockholm. It was the first time that the Japanese quality approach was presented in Sweden in a more comprehensive manner. Kondo returned for another seminar the following year.



Two Japanese colleagues Noriaki Kano and Yoshio Kondo at an LAQ meeting in Toronto 2004.

INSPIRATION FROM JAPAN

Björklund & Sandholm arranged two study visits to Japan. The first was to the International Conference on Quality Circles in Tokyo in 1985. The second was to the World Conference in Tokyo in 1987.

Every three years a conference is held with the International Academy for Quality, IAQ (see Chapter 8) as a co-organizer. The conference alternates between Europe, Japan and the USA. The conferences in Japan are hosted by JUSE. I was to take responsibility for a session dealing with quality in developing countries at the conference in 1978 to be held in Tokyo. I prepared a program in which I included, among others, Muriel Gilbertson from Ghana, who attended our UNIDO course in 1977. She greatly impressed me in the course. As expected, she made a great contribution to the conference with her brilliant appearance. Joseph Juran praised her when making the closing speech summarizing the conference.



Muriel Gilbertson from Ghana at the conference in Tokyo in 1978.

In addition to making a presentation with the title "United Nations Training Programs on Quality Control for Developing Countries", I was the Chairman of the session. The Assistant Chairman was a Japanese colleague, Takanori Yoneyama, who was the Quality Manager at Konica's camera plant outside Tokyo.

INSPIRATION FROM JAPAN

Yoneyama and I got to know each other well during the conference. Over the years, I have met him several times (including in IAQ) and have been able to follow his career. He ended up as Chairman of the Board of Directors of Konica after having had the position as CEO. It is not unusual for Japanese business leaders to have worked in a quality function earlier in their careers. In 2008, the American Society for Quality awarded both Yoneyama and myself with the Distinguished Service Medal (see Section 12).

The conference in 1978 was very useful for me. That is why I have attended all IAQ sponsored conferences held in Japan since then. As they were organized every nine years it has been years 1987, 1996 and 2005. At all these conferences I have presented papers. My positive view on the conference 1978 remained when it came to the subsequent conferences.

To the Memory of Dr. Kaoru Ishikawa

by Lennart Sandholm

Dr. Kaoru Ishikawa visited Sweden several times. The visit, that became the last one, was in 1986. He then conducted, together with his student and successor Dr. Noriaki Kano, a training course on Total Quality Control. The course was very well received. The course participants were enthusiastic.

At this visit to Sweden, Dr. Ishikawa was interviewed by a journalist from a major Swedish newspaper. The interview was given a significant space in the business section of the paper and attracted a considerable attention. The title of the interview was "Han varnar för sina egna kvalitetscirklar", in English "He warns about his own quality circles".

In preparing this memorial item, I read the interview once more. It struck me how much better off, in quality, and consequently also in market strength, many Swedish companies would have been if they really had implemented Dr. Ishikawa's philosophy and advice.

Dr. Ishikawa clearly saw the situation behind what was believed to be seen. He was very successful in explaining various conditions and factors leading to a certain result. In this search for the truth, he had the ambition of a genuine scientist.

In the interview referred to above, this ambition is reflected in his criticism of the

great interest for, and use of, QC Circles in Western companies that took place early in the 1980's. Dr. Ishikawa stressed that quality problems could not be solved through QC Circle activities alone. Instead it is necessary to have a company-wide approach to quality involving all functions and all levels. According to Dr. Ishikawa this requires a true "hands on" leadership given by top management.

At that time top managers in the West did not realize their own responsibility for quality development and that this responsibility was the most critical issue in order to achieve considerable results. Gradually in the following years we can see a change in attitudes of top managers, even if many of them still devote themselves mostly to fads when it comes to quality. In more and more companies, however, Dr. Ishikawa's ideas are being implemented with excellent results.

Dr. Ishikawa will go down in international quality history as the father of QC Circles. He developed this concept into a useful tool for quality improvement in Japan. His integrity, however, led him to not being late in criticizing QC Circles as they were used in the West two decades ago, as the only approach to quality improvement.

Another area where Dr. Ishikawa made a significant contribution was in the field of education and training. It is well-known

that numerous Japanese managers acquired a sound knowledge of quality management, as well as positive attitudes towards quality, as a result of Dr. Ishikawa's efforts in the field of quality education and training. These efforts have also resulted in a cadre of highly professional and dedicated Japanese experts, who guarantee a continuation of Dr. Ishikawa's work.

In my lecturing, I include Japan as an example of what can be achieved. Japanese development from poor quality to global leadership in quality always attracts the attention of seminar managers, students, etc. The reason I include this is that we non-Japanese can learn a lot from Japan. Here I always refer to Dr. Ishikawa. His opinion about the significant ingredients of quality work in Japan forms the basis of fruitful discussions. The same positive response is given by university students in Stockholm, by middle managers in Beijing, by engineers in Buenos Aires, by supervisors in Johannesburg or by industrial leaders in Sidney. For 20 years I had the privilege of knowing Dr. Ishikawa very well. The first time I

became acquainted with him was at the conference organized by the European Organization for Quality in Stockholm 1966. The organizing committee managed, on the spot, to organize an extra session on the Japanese quality development with highly appreciated contributions from Dr. Ishikawa and Dr. J.M. Juran. In retrospect this became a historic session - the first time the QC Circle movement was presented to an audience outside Japan.

Since 1966 I had the pleasure of meeting Dr. Ishikawa several times, mostly at international conferences and meetings of the International Academy for Quality. Talks with him were always very stimulating. To me they were a source of profound professional development. His dedication to quality, combined with his intellectual and professional greatness impressed me.

We will always remember Dr. Ishikawa with deep gratitude..

(Kaoru Ishikawa - The Man and Quality Control, The Editorial Committee of Dr. Ishikawa's Memories, JUSE 1993)

VALUE FOR MONEY

30th EOQC
Annual Conference,
Stockholm, Sweden
16 – 19 June 1986

Final Announcement and
Invitation to Delegates

Announce finale et invitation
aux délégués



EOQC-86
STOCKHOLM

EOQC European Organization for Quality Control. Organized by the Swedish Association for Quality

Invitation to the EOQC Annual Conference in Stockholm in 1986.

CONTACT WITH PROFESSIONAL ORGANIZATIONS

EUROPEAN ORGANIZATION FOR QUALITY (EOQ)

The European Organization for Quality (EOQ) was founded in 1956 as the European Organization for Quality Control (EOQC). With the widening of the quality profession, the name was changed in 1987 to the present name. Members are national quality organizations (only one for each country). Sweden was represented in the 1960's by the Swedish Committee for EOQC. Later the Swedish Association for Quality became the Swedish representative. EOQ has now about 30 members.

Early in my quality career I became a member of the Swedish Committee for EOQC. Consequently, I became involved in EOQC activities, first as Council Member, 1962-1964, and later on the Editorial Board of the magazine EOQC Quality, 1965-1975.

An important task for EOQ is to organize an Annual Conference that alternates between the member countries. Over the years I have attended several of these conferences. The first for me was in 1962 in Aix-en-Provence in France. The European conferences meant much for my development, not mainly due to the contents but more due to getting to know many knowledgeable and interesting colleagues. This included Europeans, Americans, and Japanese.

In 1966, the European Conference was held in Sweden for the first time, specifically in Stockholm. I was a Member of the Conference Board with responsibility for the registration of participants. This Conference was historic as it was the first time the Japanese quality development was discussed outside Japan (see Chapters 6 and 7). The last day of the conference was devoted to study visits. One of the companies visited was Electrolux (see Chapter 1).



The EOQC Conferences gave fruitful contacts. Here, together with Ingemund Frisinger (Quality Manager at LM Ericsson), Kaoru Ishikawa and Olle Jonson (President of EOQC 1969-1970) in Budapest in 1979.

The second time the conference was held in Sweden was in 1986, also in Stockholm. The conference theme was "Value for Money". As a Member of the Conference Board, as well as the Chairman of the Program Committee, I was responsible for the technical content of the conference. We aimed at creating an excellent program and were successful in achieving this, according to the evaluations. Many well-known quality professionals were invited as speakers - Marcos Bertin, Jim Harrington, Walter Hurd, Spencer Hutchens, David Hutchins, Joseph Juran, Noriaki Kano, Yoshio Kondo, Hitoshi Kume, Junji Noguchi, Ken Stephens, Genichi Taguchi, Ray Wachniak, Agnes Zaludova. In the session with the theme "Quality as Strategy", company executives from Europe, Japan and USA shared their experiences. Europe was represented by Anders Scharp (CEO of Electrolux), Japan by Ryoichi Kawai (Chairman of Komatsu) and USA by John Warne (former CEO of Omark Industries). The "call for papers" resulted in about 150 responses. Many of them had to be turned down. Interesting was the fact that many of the refused papers were included in the next year's conference program.

Up to the break-up of the Soviet Union in 1989, the activities of EOQC were very much influenced by the political situation in Europe. The background was that EOQC also had as members, organizations in Eastern European countries. In most cases national organizations for standardization represented these countries. The only possibility for many people



The European Conference in Stockholm in 1986. Speakers in the closing session were Laila Freivalds (Director General of the Swedish Consumer Institute, later Minister of Justice and Minister of Foreign Affairs), Ingemar Fernlund (Vice President of Research and Product Development of SKF) and Joseph Juran. The session was chaired by LS.

in Eastern Europe to participate in conferences in Western Europe was that they had a paper to present. The conference organizers had to consider this situation, which meant that many papers were of less interest to the Western European participants.

At the conference in Stockholm 1986, I was faced with this dilemma as Chairman of the Program Committee. As mentioned above, we tried to prepare an excellent program. At a meeting in Stockholm with the EOQC Board, some months prior to the conference, I presented a draft of the program. The EOQC President, who came from Hungary, criticized the program, with the support of a Board Member from Czechoslovakia. According to them there were too few speakers from Eastern Europe. These gentlemen were of the opinion that the most important quality developments took place in Eastern Europe, not in Western Europe, Japan or USA. I responded by saying that the conference program could be prepared in two ways. One was to get a clear balance of speakers from Eastern and Western Europe. The other was that the program would highlight the edges of the devel-

opment of the quality profession. For us in the Program Committee, there was only one option, and that was the latter.

As mentioned in Chapter 1, I was invited to speak on the quality development of Electrolux at the EOQC Conference in Rotterdam in 1965. Other European conferences, where I took part in by presenting papers, were in Copenhagen in 1976 (with the title "Top management and Quality"), in Paris in 1981 (with the title "Quality in Developing Countries") and in Prague in 1991 (with the title "In-House Training in Quality - A Must for Attaining Quality Leadership"). At the conference in Copenhagen, Val Feigenbaum and I spoke in the same session.

At the opening session of the EOQ Conference in Dublin in 1990 I received, to my great surprise, EOQ's "Award of Merit". The motivation was "For the best paper published in the journal, EOQ Quality, during 1989". My paper, presented at the conference on education and training organized by EOQ in Paris in 1989, was published in the journal, and was recognized in this way. The paper dealt with in-house training.

During parts of the 1970's and the 1980's I was the Swedish representative in committee work within EOQC, first in the Quality Cost Committee, 1974-1980, and later in the Education and Training Committee, 1981-1986.

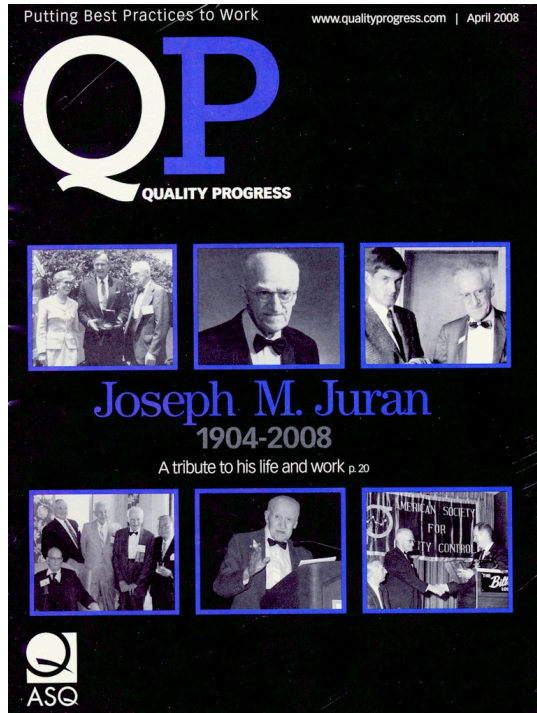
AMERICAN SOCIETY FOR QUALITY (ASQ)

Immediately after I started to work as Quality Manager of Elektroheliös in 1961, I became a Member of the American Society for Quality Control (ASQC). A change of name to the American Society for Quality (ASQ) took place in 1997. This means that I have now been a member of ASQC/ASQ for more than 50 years. The membership has been very important to my professional development

ASQC was founded in 1946. The number of members is at present more than 80,000 representing more than 140 countries. It is a very professional organization, having various Divisions for different competences and working areas. On the regional level there are Sections.

ASQ publishes several magazines. The best known is Quality Progress, which is the most-read magazine on quality. Originally, the name was Industrial Quality Control. Other magazines published by ASQ are Journal for Quality and Participation, Journal of Quality Tech-

After Joseph Juran's decease, Quality Progress devoted an entire issue to his achievements (Quality Progress, April 2008). The cover included a picture taken at Juran's visit to Electrolux in 1966.



nology, Quality Engineering, Quality Management Journal, Six Sigma Forum Magazine, Software Quality Professional and Technometrics. For some years I was on the Editorial Board of the Six Sigma Forum Magazine.

ASQ operates the publishing house Quality Press, which is the world's largest publisher of literature on quality.

ASQ organizes a major conference each year. I found these conferences to be more fruitful than the European conferences. That is the reason why I usually attended the American conferences since the 1970's. They gave me useful contacts with leading quality professionals.

To the conference in Detroit 1982 I was invited as the European representative to participate in a panel discussion with Kaoru Ishikawa representing Japan and Joseph Juran representing USA. The theme of the discussion was "International Viewpoints on Quality". It was, of course, great to be in this company.

International Viewpoints on Quality

Three of the world's top quality authorities will meet to present an international overview of Quality Control in the 1980s during this unique session. Kaoru Ishikawa, J.M. Juran, and Lennart Sandholm will discuss world competition and its effect on their own countries

as well as how the new quality consciousness has affected world markets. The close relationship between quality and productivity, plus expectations of industry and the quality professional for the rest of the decade will highlight this Congress event.



KAORU ISHIKAWA has been President of the Musashi Institute of Technology since 1978. He is well known in the Quality field. He has been a member of ASQC for 30 years and a Fellow since 1969. Presently he is chairman of twelve committees and is affiliated with many other prominent societies. Ishikawa authored

Introduction to Quality Control, Control Chart Methods and Quality Control Textbook. From 1940 through 1947 Ishikawa was an engineer for the Nissan Ekitanero Co.; after that, he was a Professor of Engineering at Musashi until his appointment as President in 1978.



J.M. JURAN, since beginning his career in 1924, has served in many capacities, including engineer, industrial executive, government administrator, corporate director, and consultant. He has published ten books, including *Quality Control Handbook*, *Quality Planning and Analysis* (with F.M. Gryna), and

Management of Quality Control. His writings have been translated into a dozen languages. He has

conducted the "Management of Quality Control" course over 200 times in over 30 countries on all continents, providing training to over 15,000 managers and specialists. A holder of degrees in engineering and law, Juran maintains an active schedule as an author and international lecturer while serving various industrial companies, governmental agencies, and other institutions as a consultant. He recently received the Order of the Sacred Treasure, Second Class, from the Emperor of Japan, for his work in quality management.



LENNART SANDHOLM is a Management Consultant and partner in Bjorklund & Sandholm, consulting and training institute. As Program Director, he is responsible for training programs organized by the United Nations Industrial Development Organization (UNIDO). He teaches

quality control at Lindkoping Institute of Technology, the only university with a quality control program in Sweden, and does training programs all over the world. Sandholm has published numerous articles and has contributed to J.M. Juran's *Quality Control Handbook*. He is Chairman of the Education and Training Committee of the Swedish Society for Quality Control, of which he is also President.

Quality Progress March 1982 33

The panel discussion at the ASQC Conference in Detroit in May 1982, as it was presented in Quality Progress, March 1982.



"Among the special sessions held during the Congress was a panel discussion focusing on international quality activities. Participants included (from left) Kaoru Ishikawa, President of the Musashi Institute of Technology; J.M. Juran, author, lecturer, and consultant; and Lennart Sandholm, a partner in Bjorklund & Sandholm. Seated to the left of Ishikawa is his translator." (Quality Progress, July 1982).

CONTACT WITH PROFESSIONAL ORGANIZATIONS

Also at the conference in Las Vegas in 1994, I took part in a panel discussion, this time together with Blan Godfrey and Noriaki Kano. The theme of the discussion was "Quality in the Year 2000 ". My contribution included a criticism of the frequent use of fashions in the area of quality. I highlighted four effective strategies for quality: top management's visible leadership, massive training, market focus, and continuous improvement.

As mentioned above, I became a Member in 1961. I was elected to Senior Member in 1968 and to Fellow in 1978.

In 1984, I received, as the first European, the ASQ Grant Medal which is given for achievements in the field of education and training. The motivation was "For his initiative and leadership in developing and presenting educational programs in the field of quality in the Nordic countries of Europe and in developing countries on all continents". It was Joseph Juran who nominated me for this award. The Medal was presented at the ASQC Conference in Baltimore, Maryland, in 1985.

Since 2003 I have been a Member of the Grant Medal Committee. For one year, I was Chairman of the Committee. On my own request, I resigned since I found it to be quite difficult to carry out the task from Sweden.

In 1994, I was awarded the Lancaster Medal This award recognizes international work. The nomination was made by Marcos Bertin from Argentina. The motivation was "For outstanding service to the promotion of quality throughout the world. Lennart Sandholm has unselfishly given his time and exceptional expertise to developing countries in all areas of the world and provided new insights, concepts, and methods to thousands of quality professionals". The medal is named after Jack Lancaster whom I met at many conferences in Europe until 1980, when he passed away, which took place in connection with the EOQC Conference in Warsaw. He was one of the founders of the International Academy for Quality (IAQ), see below the discussion on IAQ. I received the Lancaster Medal at the ASQC Conference in Cincinnati, Ohio in 1995.

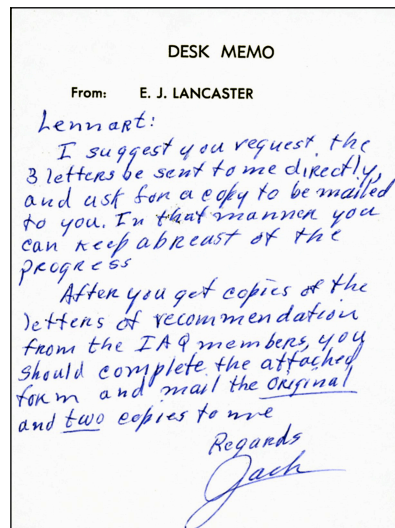
The most recent ASQ award given to me is the Distinguished Service Medal in 2008 (see Chapter 12). The motivation reads "For outstanding promotion of the philosophy, methods, and techniques of Total Quality Management in Europe and Asia and in recognition of a forty-year career in teaching, and developing the next generation of quality professionals". The nomination was made by Greg Watson. I received the Medal at the ASQ Conference in Houston, Texas in 2009.

INTERNATIONAL ACADEMY FOR QUALITY (IAQ)

The International Academy for Quality (IAQ) has its origin in the "Six Men Board" which was formed in 1966 to lay the foundation for an international organization, provisionally called the International Quality Association. Members of the "Six Men Board" were from ASQC, Val Feigenbaum and Jack Lancaster, from EOQC, George Borel (France) and Frank Nixon (Great Britain), and from JUSE, Kaoru Ishikawa and Masao Kogure. The first formal meeting was held in connection with the EOQC Conference in Stockholm in 1966. In 1971, the first international organization was established and was named the International Academy for Quality (IAQ). The number of members from the start was 21 (7 from each one of ASQC, EOQC, and JUSE). Among the first members were, in addition to those mentioned above, J. D. N. De Fremery (the Netherlands), Olle Jonson (Sweden), Walter Masing (Germany), Umberto Turello (Italy), and Agnes Zaludova (Czechoslovakia).

Jack Lancaster suggested consideration of membership in IAQ and sent me some documents in 1979. I followed Lancaster's instructions and was elected as an IAQ Academician in 1980. My sponsors were Carl-Anker Kofoed (Denmark), Yoshio Kondo (Japan) and Walter Masing (Germany). I gave my introductory speech the same year at an IAQ meeting in Frankfurt. The title of the speech was "Developing Countries and Quality Control".

Sadly, Jack Lancaster passed away a few days before the IAQ meeting. He died in connection with the EOQC Conference in Warsaw. ASQC paid a tribute to Lancaster's memory with a Medal to be given for international work. I had the pleasure of receiving the Medal in 1994 (see Chapter 12).



Jack Lancaster sent me instructions for membership in IAQ in 1979.

CONTACT WITH PROFESSIONAL ORGANIZATIONS



LAQ Academicians attending the LAQ meeting in Frankfurt in 1980. Among them were my three sponsors (Kofoed and Masing sitting on the left and Kondo standing in the center of the front row).



The LAQ President Walter Masing handing over the diploma and the pin at the meeting in Frankfurt in 1980.

In 1999, I was elected to the Board. I resigned from this task at the IAQ meeting in Budapest in 2011 and became a member of the then newly created Board of Advisors. This was a group of six senior Academicians having an advisory role to the IAQ Executives and to the Board. Other members were Yoji Akao (Japan), Marcos Bertin (Argentina), Jackson Grayson (USA), Noriaki Kano (Japan), and Hans Dieter Seghezzi (Liechtenstein).

From 2003 to 2008, I was the Chairman of the Evaluation Committee which had the task of evaluating individuals nominated for membership. Involved in the Evaluation Commit-

CONTACT WITH PROFESSIONAL ORGANIZATIONS

tee, I noticed that more and more European Academicians had a background in the academic world. It was clear that some university professors systematically nominated colleagues. This led me to conduct a study of the membership for two years - 1988 and 2008. The study showed that the number of European Academicians being university professors had increased by 11 during these 20 years, while the number of European quality managers had decreased to naught. My report on the development got much attention. This can be a problem for IAQ, if the number of European Academicians who are working practically with quality continues to decline. The situation, however, is not like this for other geographical regions.

For my work in IAQ I received the IAQ Founders Medal in 2008. I became Academician Emeritus in 2009 and Honorary Member in 2010 (see Chapter 12).

IAQ has the following categories of membership:

Honorary Member (11)

Academician Emeritus (15)

Academician (64)

Companion Member (6)

Associate Member (21)

Corresponding Member (9)

The total number of members in January 2013 was 126. The distribution per category is given above in parentheses.



IAQ meeting in Vienna in 2008. From left Chuck Aubrey, Tito Conti, Spencer Hutchens, Brian Godfrey and Greg Watson.

CONTACT WITH PROFESSIONAL ORGANIZATIONS

Good news for me was that Lars Sörqvist continued my work in IAQ. Lars became Associate Member in 2008 and Member in 2010. In 2011 he was elected Vice President with responsibility for the evaluation of individuals nominated for membership. It was the task I had for some years.

My membership in IAQ became very important to my professional development. Over the years, I had the pleasure to establish and develop good and creative relations with several professionals who had achieved significant pioneering work in the quality field.

Greg Watson is, in my view, the Academician who meant most to the development of IAQ during the latest years. He was Chairman and before that President. He has undertaken many valuable initiatives and has carried these to worthwhile results. Part of this work led to relevant changes in the bylaws, including the process for the nomination and election of members. Greg's good work has led to IAQ receiving the status as Consultative Body to the United Nations.



The IAQ colleagues Greg Watson, Blain Godfrey and Noriaki Kano in Milwaukee in 2006.

Every three years IAQ is a co-organizer of an international conference. The conference alternates between Europe, Japan, and the USA. In Europe, it is the EOQ Conference venue, in the USA the annual ASQ Conference. The latest conference was held in Budapest in June 2011. At several of these conferences I presented papers.

CONTACT WITH PROFESSIONAL ORGANIZATIONS



Together with the LAQ colleagues Val Feigenbaum and Ken Case in Toronto in 2004.



Marcos Bertin from Argentina has meant a lot to the development of LAQ. Here together with his wife Alicia in Kansas City in 2003.



Ken Stephens with his wife Gina in Kansas City in 2003. I got to know Ken when I studied at Rutgers University, 1965-1966. He was then a doctoral student with Professor Harold Dodge. Over the years we met several times in different parts of the world, partly due to Ken's work for UNIDO. Later we met in LAQ.

CONTACT WITH PROFESSIONAL ORGANIZATIONS

In the years 1988-2004, IAQ published yearly a book called, "IAQ Best on Quality". It contained contributions from Academicians. My contributions were "Maturity in Quality is on the Way in Sweden" (1998), "Quality in Developing Countries" (1999), "Defining the Role of a Quality Manager" (2001), "To the Memory of Dr. Kaoru Ishikawa" (2002) and "Dr. Joseph M Juran, A True Mentorship in Retrospect" (2004). The last contribution was included in a tribute book to Joseph Juran who became 100 years old in 2004. The book, published on my initiative, had the title "Juran, Quality and a Century of Improvement".

The Academicians in the Nordic countries of Europe met every year in order to discuss IAQ issues and to exchange experiences. Also, mutual projects were dealt with. The results of these projects were usually published in "IAQ Best on Quality", for example "The Quality Direction of Scandinavia" (1996) and "TQM in the New Millennium" (2000). The meetings were hosted by the members in an alternate way. I hosted meetings in 1999 and 2008. Ove Hartz had a driving and coordinating role in organizing the meetings.

Meeting with the IAQ Nordic Group at our office in September 2008. From left Jens Dahlgaard, Juhani Anttila, Ashbjörn Anne, L.S, Ove Hartz and Su Mi Park.



The IAQ Administrative Office is located at ASQ's office in Milwaukee, Wisconsin. Trish Borzon is responsible for the administrative work.

Two years ago a change was suggested for the IAQ's graphic logo. The proposals presented were less than desirable. As a result, my son Fredrik Hökerberg Sandholm prepared an alternative logo, which was greatly appreciated by the IAQ officers. For his contribution he was presented with a medal of gratitude.



**INTERNATIONAL
ACADEMY for
QUALITY**



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Poor Quality Costing

by

Lars Sörqvist

Stockholm
1998

ROYAL INSTITUTE OF TECHNOLOGY
Dept of Materials Processing
Production Engineering
100 44 Stockholm

Doctoral thesis No. 23

The first doctorate thesis in quality at the Royal Institute of Technology was presented in 1998.

UNIVERSITY EDUCATION IN QUALITY

LINKÖPING UNIVERSITY OF TECHNOLOGY

Through my involvement in the Swedish Association of Metalworking Industries, I was asked in 1975 if I could help the Linköping University of Technology to start an education program in the field of quality. As I found this to be an important development of the quality profession and as the task looked interesting as well, I accepted the offer.

The University started in 1969. As a new university, it was not bound to traditional subjects but was open to new subjects. Quality was seen as a subject with an important future. It was the same with maintenance. For economic reasons the two subjects were put together in one program with the title, Quality and Maintenance Engineering. Training started in autumn of 1976. I was responsible for the quality components and Karl-Edward Johansson for the maintenance components. I left the University in 1983. This was the first university program in Sweden in the field of quality.

According to the university guide book the objective of the program was:

"The program shall make the students well acquainted with technical and administrative tools to be used in various phases of the development and life of products in order to achieve optimal quality of manufactured products. In addition, the program provides an understanding of and basic knowledge of the maintenance function mainly within engineering industries, as well as familiarity with technical, mathematical and administrative methods for maintenance problems, as well as the competence to deal with such problems."

The program consisted of three segments:

1. Basic methodology (80 hours)

Including: basic concepts in quality and maintenance. Development and life cycle. Applied statistical methodology. Design of experiments. Reliability.

2. Quality management (80 hours)

Including: Quality requirements. Quality control. Product development. Vendor relations. Manufacture. Quality audit. Customer relations. Human factors in quality. Information system. Quality economy. Quality improvement. Quality system. Quality policy and objectives.

3. Maintenance engineering and administration (56 hours)

Including: Maintenance functions. Maintenance program. Maintenance strategy, management and implementation. Maintenance economy. Maintenance planning.

A written examination for each segment was given. Besides lectures and examinations, supervision of examination papers were included.

ROYAL INSTITUTE OF TECHNOLOGY

When I started with quality consulting and training in 1971 I was contacted by an Assistant Professor in Welding Technology at the Royal Institute of Technology in Stockholm. He wanted his students to attend our training course in Applied Statistical Quality Control. The problem was the fee. As a compensation he offered a lecture room at the Institute. I accepted this proposal and the arrangement continued for a couple of years.

The invitation to the course in Applied Statistical Quality Control given in cooperation with the Royal Institute of Technology.

Björklund & Sandholm

**2-dagars
kurs**

**Tillämpad
statistisk
kvalitetskontroll**

**Användning av statistiska hjälp-
medel i kvalitetskontrollarbetet**

STOCKHOLM
KUNGL. TEKNISKA
HOGSKOLAN
15—16 november 1972

As reported in Chapter 2, Björklund & Sandholm became a subsidiary of the Swedish Management Group. Gunnar Sohlenius, Professor of Production Systems and Vice President at the Royal Institute of Technology, wanted the Institute to offer education in quality under my leadership. He contacted the Swedish Management Group on sponsoring an Adjunct Chair. This proposal was accepted. Sohlenius was familiar with me from my involvement in Linköping where he was a Professor during my time there.

The purpose of Adjunct Chairs at universities of technology was to provide competence from business and society. An Adjunct Chair usually involved 20 per cent of a full-time post. My Chair had this scope. After a three-year period the post was extended by an additional three years. Any further extension was, according to the rules, not possible.

Immediately after the appointment, I prepared the curriculum. I found it appropriate to give two programs - an introductory program and an advanced one.

MB 050 Quality, general course
(2 study credits)

Objective

To give an understanding of the importance of quality to society and business, as well as to give basic knowledge of how to control quality in industrial processes.

Prior knowledge

FA165 Mathematical statistics, general course

Course content

Concept and definitions. Development of the quality profession. The West and Japan. Development trends. Profitability and quality. Meeting customer needs. External and internal customers. Coordination and planning for quality. Controlling quality. Quality assurance. The Juran Trilogy. Quality in different company functions: market studies, product development and design, production planning, purchasing, manufacturing, marketing, after sale service. Inspection. Quality auditing. Quality economy. Data feedback. Quality improving. Human factors in quality. Quality policy. Quality objectives. Organizing for quality.

Course requirement

Written examination.

MB 052 Quality, continuation course
(4 study credits)

Objective

To give deeper knowledge of methods and tools for the control and assurance of product quality.

Prior knowledge

Quality, general course

Course content

Quality system:

System approach. Quality system requirements. Quality system standards, ISO 9000.

Quality auditing:

Different approaches. System audits. Process audits. Product audits.

Quality improvement:

Basic data for improvement. Quality evaluation. Quality improvement in project form. Improvement process.

Quality costs:

Concept. Collecting cost data. Analysis. Feedback. Optimizing.

Product development:

Quality planning. QFD (Quality Function deployment). Verification work.

Manufacturing:

Process output. Process capability. Process capability studies. Failure Tree Analysis (FTA). Failure Mode and Effects Analysis (FMEA). Zero defects in manufacturing. Statistical Process Control (SPC).

Inspection:

Process control. Acceptance inspection. Statistical methods. Inspection planning.

Course requirement

Written examination.

The program Quality as described in the Course and Program Directory 1989.

The interest for the program was great, in spite of it being optional. Primarily, students belonging to the Mechanical Engineering School chose the program.

The Chair involved research work as well. My experience from Electrolux created an interest in exploring the costs of poor quality. This research was taken up by a doctoral student, Lars Sörqvist, who completed his Doctorate in 1998. His thesis entitled, "Poor Quality Costing", received quite a lot of attention in industry.

The opponent at the disputation was Blan Godfrey (Adjunct Professor at the Columbia University and Chairman of Juran Institute). Members of the disputation committee were Asbjörn Aune (Professor at Norwegian University of Technology), Ove Hartz (Associate Professor at the Danish University of Technology) and Jorma Verjankorva (Corporate Quality Director of Valmet in Finland).

Kvalitetsbrist kostar företagen 1 000 mdr

Cecilia Bystedt
Tel 08-730 30 73
cecilia.bystedt@di.se

Om svenska företag blev bättre på kvalitetsarbete skulle omsättningen kunna öka med runt 1 000 miljarder kronor. I dagsläget jobbar man på fel sätt. För mycket tid läggs på olika mätningar och för litet på åtgärder.

De bedömningarna kommer från Lars Sörqvist, kvalitetsforskare på Kungliga Tekniska Högskolan och konsult i kvalitetsfrågor.

Lars Sörqvist doktorerade nyligen på företagens kvalitetsarbete. Han har tittat på flera kända företags kvalitetsarbete, däribland Volvo, Saab, Ericsson, Sandvik och SKF. I avhandlingen konstaterar han att en del av de använda mätmetoderna saknar precision och att undersökningsresultaten inte omvandlas till åtgärder. Dessutom skapar kvalitetsarbetet osäkerhet hos personalen och företagsledningens ifrågasätter resultaten.

Enligt Lars Sörqvist är det inte svårt att hitta kvalitetsmisar som gör att företag förlorar många miljoner i uteblivna affärer. Sammanlagt för hela det svenska näringslivet förlorar man omsättning på närmare 1 000 miljarder kronor. Med tanke på att hela den svenska ekonomin, bruttoto-

KVALITETSDOKTOR: Lars Sörqvist, har nyligen doktorerat på Kungliga Tekniska Högskolan i Stockholm i ämnet kvalitetsarbete. Han använder sina forskningsresultat i sitt jobb som konsult på företaget Sancholm Associates.

nalprodukten, uppgår till 1 700 miljarder kronor, handlar det om anseende belopp.

Ge omsättningsökningar

"Min bedömning är att en liten insats i ett företag, ett par veckors arbete, kan ge omsättningsökningar på i storleksordningen 10 till 15 procent."

Ett exempel är SSAB tunnplåt i Luleå som hittade kvalitetsbrister på 200 Mkr per år, motsvarande 7 procent av omsättningen. Dagens många kvalitets-

begrepp, ISO 9000, TQM med flera, är visserligen inte dåliga, tycker Lars Sörqvist, men de har en del svagheter. Företagen läser in sig i för mycket mätningsarbete, och kvalitetsarbetet blir statiskt. Ambitionerna stannar på en viss nivå i stället för att öka.

Dela upp felen

I forskningsarbetet har Lars Sörqvist kommit fram till att man måste dela upp felen i tillfälliga och kroniska fel. Oftast koncentrerar sig företagen på de tillfälliga felen.

"Styrning och revision är lätt att acceptera. Det är svårare att förändra mänskliga beteenden, även företagsledningarnas beteenden."

Han konstaterar att många svenska företagsledare är duktiga på olika fackområden, men sämre på helheten. Han är också kritisk mot den kraftiga hastning av företagens organisationer som skett de senaste åren.

Viktigt utveckla metoder

"Det är viktigt att personal får möjlighet att utveckla nya metoder, inte bara nya produkter."

Ett exempel är företag som Ericsson och Astra som avsätter nästan 20 procent av sin omsättning på forskning, men betydligt mindre på verksamhetsutveckling. I länder som USA och Japan är det annorlunda. Där finns det företag som satsar mycket på verksamhetsutveckling, men mindre på produktutveckling.

Lars Sörqvist betonar betydelsen av att personalen engageras.

"Det är viktigt att förankra kvalitetsarbetet hos facket. Det kan uppstå rationaliseringsbehov, men det som ofta händer i ett framgångsrikt kvalitetsarbete är att man till slut måste anställa mer folk. Marknadseffekten blir starkare än rationaliseringseffekten."

Han konstaterar också att kvalitetsavriga i företagen måste bli bättre på att kvantifiera i kronor och ören vilken effekt ansträngningarna skulle kunna få på omsättningen. Det är först då ledningen blir villig att prioritera kvalitetsarbetet.

The headline in the major Swedish business paper reads "Quality deficiency costs the companies 1000 billion Crowns". (Dagens Industri, May 23, 1998)



The international disputation committee at Lars' disputation. From left Jorma Verjankorva (Finland), Ove Hartz (Denmark), Asbjörn Aune (Norway) and Blan Godfrey (U.S.A.).

Through my involvement as Adjunct Professor at the Royal Institute of Technology we organized two conferences in cooperation with the Institute. One, with the title, "Business Development with a Focus on Quality", was held in conjunction with our 25th anniversary in 1996. Speakers, besides Lars and myself, were Bo Berggren (Chairman, STORA and SAS), Janne Carlsson (President, Royal Institute of Technology), Stig Larsson (Director General, Swedish Rail), Lars Lindberg (General Manager, Umeå University Hospital), Blan Godfrey and Noriaki Kano. In another conference which was held in 1997, Joseph Juran and Blan Godfrey spoke via satellite.

When I left the Institute, Lars was placed in charge of the Quality Program. Eventually, the program was moved from the Department of Mechanical Technology to the Department of Industrial Control Systems. Since 2008, Lars is Associate Professor at the Institute. Under his leadership, the cooperation between the Institute and Sandholm Associates has developed in a good and fruitful manner.

KASETSART UNIVERSITY

In the year 2000, I was invited by Kasetsart University in Bangkok, Thailand as Adjunct Professor to lecture in the Post Graduate Course in Advanced Quality Management. The invitation was initiated by Professor Rachavarn Kanjanapanyakom who participated in our long international training course in 1992 and in our international leadership seminar in 1995 (see Chapter 4). My engagement lasted up to 2007.

The objective of the Course was given as follows:

To give extensive knowledge of strategies and methods to achieve customer satisfaction, good profitability and cost effectiveness. The course will enable the students to provide competent and effective leadership of the quality function in an industrial environment.

The Course consisted of five segments, specified as follows:

- Segment 1: Role of Quality

This segment is an introduction covering concepts, approaches, international developments, trends, good examples, quality awards, etc.

- Segment 2: Planning for Quality

This segment deals with how work is planned and controlled in different functions, as well as how it is coordinated in the entire organization. Among the topics covered are quality function deployment (QFD), The Juran Trilogy, process management.

- Segment 3: Assessment of Quality

Different ways of getting information on quality are covered – data feedback, poor quality costs, quality auditing, quality evaluation and benchmarking. It is shown how awards criteria can be used in the evaluation.

- Segment 4: Improvement of Quality

This segment deals with how effective improvement work is carried out in the entire organization in order to achieve better quality, more efficient processes and lower costs. The Six Sigma improvement concept is covered as well.

- Segment 5: Leadership for Quality

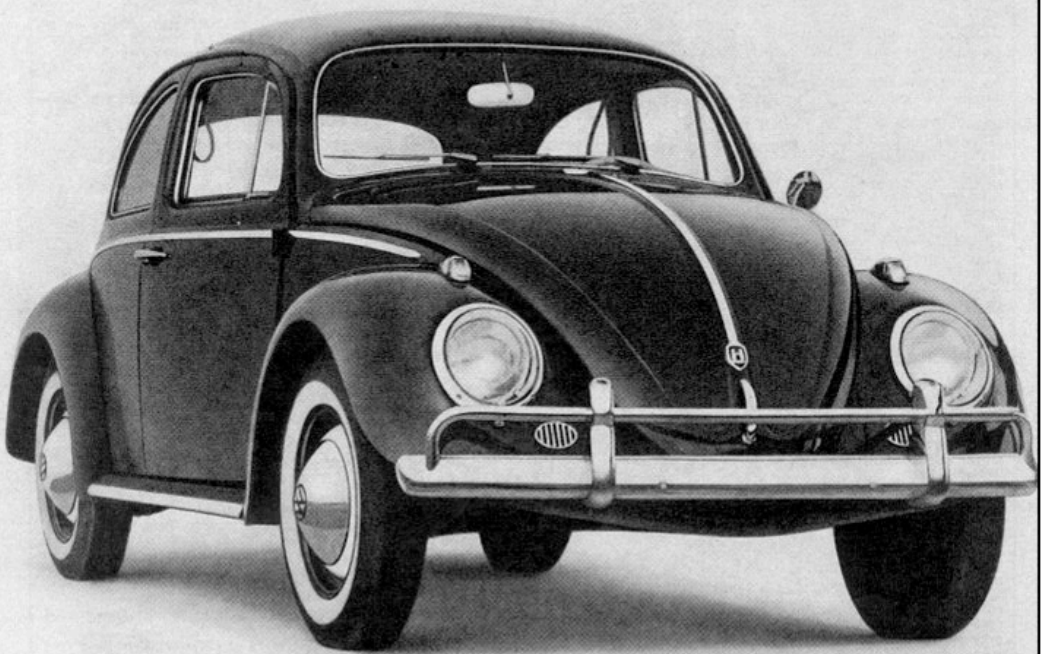
Issues related to leadership for quality are dealt with, e.g. human resources, education and training, role of senior management, mission and vision, quality policy and goals, quality system, ISO 9000, quality organization, strategic quality planning.

The course having a length of 42 hours was carried out with lectures, assignments and discussions. The documentation consisted of my book, Total Quality Management (see Chapter 11), and supplementary lecture notes. As most of the students worked in the daytime, my lectures were held in evenings and on Saturdays. A written examination was included.

UNIVERSITY EDUCATION IN QUALITY



Together with the students in 2004.



©1960 VOLKSWAGEN

Lemon.

This Volkswagen missed the boat.

The chrome strip on the glove compartment is blemished and must be replaced. Chances are you wouldn't have noticed it; Inspector Kurt Kroner did.

There are 3,389 men at our Wolfsburg factory with only one job: to inspect Volkswagens at each stage of production. (3000 Volkswagens are produced daily; there are more inspectors

than cars.)

Every shock absorber is tested (spot checking won't do), every windshield is scanned. VWs have been rejected for surface scratches barely visible to the eye.

Final inspection is really something! VW inspectors run each car off the line onto the Funktionsprüfstand (car test stand), tote up 189 check points, gun ahead to the automatic

brake stand, and say "no" to one VW out of fifty.

This preoccupation with detail means the VW lasts longer and requires less maintenance, by and large, than other cars. (It also means a used VW depreciates less than any other car.)

We pluck the lemons; you get the plums.



Legendary advertisement from the 1960's reflecting the recent quality activities - inspection and testing.

FROM INSPECTION TO EFFECTIVE IMPROVEMENT WORK

The last 50 years have been a fantastic journey for me. When I studied at Chalmers University of Technology in Gothenburg and when I later started to work with the development of microwave ovens at Elektroheliös, it was not in my faintest thoughts that my life's work would be occupied with quality. I entered into a chance occurrence, and then coincidences have brought me further on my journey. During this journey I have experienced and have been involved in the developments taking place in this professional area.

When I was given the task to be the head of a new department dealing with quality at Elektroheliös in 1961, the company management proposed that I should visit other companies in order to see how they worked in the area of quality. In companies visited the dominant quality related activity was inspection and testing. Many engineering companies had large inspection departments headed by a Chief Inspector. The task was mainly sorting out bad products from good ones²⁰. Any systematic preventive work was rare.

The visits didn't provide much to follow. It was the number of complaints that was the primary reason for management to set up a department for quality. I realized that introducing more inspection would not solve the problem. It was necessary to get the facts and, on the basis of this information, go forward with a comprehensive improvement work. See more on this in the section dealing with my time at Elektroheliös (see Chapter 1).

²⁰ The introduction image is an advertisement from Volkswagen's marketing campaign in USA in the 1960's. The campaign became legendary in the advertising profession. The content is interesting when it comes to quality as the text highlights the amount of inspection activities as an argument for purchasing a Volkswagen: "There are 3,389 men at our Wolfsburg factory with only one job: to inspect Volkswagens at each stage of production. (3000 Volkswagen's are produced daily; there are more inspectors than cars.)"

There were two books that gave me inspiration: "Quality Control Handbook" by Joseph Juran²¹ and "Total Quality Control" by Val Feigenbaum²². Both books were published in the beginning of the 1960's. Primarily, it was Juran's message that caught me. In order to achieve good results, it was necessary to work with all functions directly affecting product quality, and that this work had to be coordinated. Actually, it was an understanding I got through observing the situation within Elektroheliol, but Juran confirmed my opinion. Consequently, I set about to influence others in the same direction.

Feigenbaum introduced a system approach to quality, a view that I found interesting. The activities influencing quality were part of a "quality system". This also showed how the activities were related to each other. On large contracts in the defense and astronautics areas in the USA, the systems approach was practiced. Requirements were established on what a "quality system" pertaining to suppliers should include..

A problem in the 1960's in Sweden was the lack of a common quality terminology in the Swedish language. What would "quality control", "total quality control", "quality assurance" and "quality audit" be called? Years later, a national standard on quality terminology was published.

In the 1970's, issues related to the safety of products were emphasized. The reason was that some companies in the USA were sentenced to pay very large fines due to quality deficiencies that led to injury of persons or damage to property. This meant that manufacturers and distributors could be forced to pay compensation to those affected, according to new US legislation on "product liability".

Several Swedish companies, with sales in the USA, realized that it was important to take product liability into account. It was done by working more seriously with product safety. In order to protect themselves against the large damages that would have devastating consequences for the economy, companies bought a product liability insurance. A Swedish insurance company that provided such insurances was Skandia. A consequence was that Skandia engaged me in informing their staff members concerned about quality control as a means for making products safer. Furthermore, Skandia asked me to write a book on the subject. The book was published in 1975, first in Swedish and later in English. The title was "Safer Products Through Quality Control" (see Chapter 11).

21 J. M. Juran, Quality Control Handbook, Second Edition, McGraw-Hill, 1962.

22 A. V. Feigenbaum, Total Quality Control, McGraw-Hill, 1961.

Product liability got a great deal of attention in Swedish press in the 1970's.



In the first half of the 1980's, we saw a growing interest in quality among business leaders in the West. The main reason was that it became obvious that quality meant a great deal to the future development of the companies. This understanding was a consequence of lower profitability, due to market shares lost to Japanese competitors. Juran's prediction of the Japanese progress already given in 1966 (see Chapter 6) was fulfilled. This was a tough wake-up call for many industrial companies.

The awareness that something had to be done started in the West. This ushered in a period of quality fashions that lasted for 20 years. Some approaches and methods came into focus and were for some years widely spread and emphasized. Ignorance and immaturity, in the case of business development with a focus on quality, resulted in trusting what was emphasized in management magazines and at conferences. Many companies were also influenced by consultants and institutions, which, in their own interest, pushed for certain approaches and methods. The result was usually unsatisfactory.

To begin with, and throughout the whole of the 1980's, the West was very much influenced by what was perceived that Japanese companies were doing in order to be successful in quality. The inspiration might have come from visits to Japan, where the whole of the Japanese approach to quality was not seen. Often, more attention was devoted to only a few approaches and sometimes the more spectacular methods. Quality Circles and the Seven Quality Tools were good examples of this.

Quality Circles involved personnel on the factory floor improving the quality of their work. This attracted managers in the West who had the opinion that quality deficiencies were mainly due to a lack of motivation of employees. This was a widespread myth. The quality problems were usually attributed to the managers themselves. Another myth was that Quality Circles had a great impact on the quality success of Japanese companies. In my talks with Japanese quality professionals, such as Kaoru Ishikawa and Noriaki Kano, as well as visits to Japanese industrial companies, it was obvious that Quality Circles had only a marginal effect (see Chapter 7). At the most, 10 per cent of the improvements were due to Quality Circles. I often opposed the uncritical attention given to Quality Circles²³.

Those involved in Quality Circles in Japan were taught seven methods to be used in improvement projects. The reason for choosing just seven methods (or quality tools) was that the samurais, i.e. the Japanese warriors, had seven tools when they went out fighting a battle. Members of the Quality Circles were supposed to feel like samurais when they went out fighting poor quality. Some persons understood that the use of these seven tools explained the Japanese quality success. It was then a matter of implementing these tools in the organization. For example, a large company in Sweden carried out a comprehensive training in the Seven Quality Tools. It would be interesting to find out what such an effort meant to the company in improved customer satisfaction and decreased poor quality costs. Some universities began teaching the Seven Quality Tools²⁴. The consequence was that quality was understood by many graduates as nothing more than applying the seven tools.

In Chapter 6, I mentioned that the myth of Edwards Deming's importance to the Japanese quality success was largely a result of NBC's television documentary "If Japan Can, Why Can't We?". The program got a great deal of attention among US business leaders. The use of statistical methods was very much highlighted. Deming was a noted statistician. For managers, particularly in the automotive industry, who were pressed to do something about quality, the solution was evident when they watched the program.

Under the label SPC (statistical process control) control charts were introduced, whether they were needed or not. In many cases, the application was ineffective and the charts were

²³ ASQC's magazine *Quality Progress* published in 1983 my article "Japanese Quality Circles – A Remedy for the West's Quality Problems?", in which I criticized the use of Quality Circles in the West. Apparently it was not appropriate at that time to make such criticism, as the Chief Editor's editorial note showed: "In order to promote discussion of issues in the field of quality and to ensure coverage of all responsible points of view, *Quality Progress* publishes conflicting and minority views. The opinions expressed in this article are those of the author and not necessarily of the American Society for Quality Control or *Quality Progress*."

²⁴ A professor of quality having a doctorate in statistics gave a lecture which I attended. He talked about Seven Quality Tools. After having written them down on a flip chart, he pointed out that, according to him, one other tool should be included. The problem for him was which one of the seven tools listed on chart should be removed. I couldn't be quiet and remarked that he could have eight tools, if necessary.

only a front. Statistical competence was a limited resource. Hence, in many other cases more important approaches were ignored at the expense of SPC²⁵. In one of the largest companies in Sweden, the CEO sent out a circular in which he praised the use of SPC. According to him, SPC was not just a technical method, but a view of the production personnel. SPC should be used wherever it was possible.

In my reference to Val Feigenbaum above, I mentioned that he dealt with quality systems in his book, "Total Quality Control". Some time later standardization organizations found that this was an area for standardization. The development began in the United Kingdom, where the same threat from Japanese companies, as for other industrialized countries, was felt. In order to respond to this, a year long national campaign for better quality was carried out in the beginning of the 1980's. Both private and public sectors joined behind the campaign. One of parties involved was the British Standards Institution (BSI), an organization that in 1977 had published a national standard on requirements for quality systems (BS 5750). Within the framework of the national quality campaign, BSI managed to get the British Government to decide that supplies to governmental organizations should only take place from suppliers having a quality system meeting the requirements of BS 5750 and approved by BSI. From this development, companies were forced to work in this way. At the same time work within the International Organization for Standardization (ISO) was going on to develop an international standard on quality systems. This work, in which BSI participated actively, resulted in the first edition of ISO 9000.

The new international standard on quality systems was spread widely, mainly by British action. To many people, quality initiatives became synonymous with introducing a quality system in accordance with the requirements of ISO 9000, and to ensure that the system was approved by a certification body. This was in spite of the fact that both the first and the second editions of the standard (published in 1994) lacked essential requirements, particularly on activities that were directly related to customers. Many driving forces and stake-

²⁵ In 1984 I was invited by the defense division of an US multinational company to conduct a management seminar on the quality movement in Europe. Before the seminar I was informed about the company's quality activities. Among other things they showed the training program which included a lot of training in SPC. On my question about the reason for so much training in SPC, an expression of surprise was shown and it was said that SPC was a part of today's quality work. Any analysis of the training needs had not been done. What other companies did and what was red in magazines was followed in an uncritical way.

holders, such as standardization organizations, certification bodies and consultants were behind the rapid spread. All had interests in spreading this approach.²⁶

Many companies took to the requirements in ISO 9000. They documented their procedures in a quality manual and became certified by a certification body. In many cases, commercial reasons were a driving force, in that some customers demanded this form of quality assurance, or the competition in the market. But there were many companies that adopted the standards without having direct commercial needs. The reason was simply that management realized that something related to quality had to be done. And then, in their ignorance, they decided to introduce a quality management system according to ISO 9000. The belief was that introducing ISO 9000 meant that what could be done had then been done. This view was reinforced by the opinion that this was what other companies did in order to improve quality.

In the beginning of the 1990's there was a focus on benchmarking. The background was related to the US manufacturer of copying machines, Xerox, which was a very successful company in the 1970's. It was always at the top in terms of profitability. The reason for the exceptionally good results was that Xerox had the patent on making copies of documents by means of an electrostatic method. This method gave significantly better quality of copies than other methods. Customers wanted to this type of copies (often called, Xerox copies) and Xerox had a significant advantage over the competitors. Revenue was enormous and management was very pleased. However, the copiers didn't always work so well. Users often had to call on service. This state, however, didn't come to management's attention, since Xerox had an inadequate system of feedback of information on the quality of the copying machines. What was reported to management were the good sales and profit figures. Increased sales resulted in the hiring of more service men in order to keep the machines running at the customers' premises. Improvements in the machines themselves were not made.

When the patent expired, it was free for competitors (many Japanese) to use the electrostatic method in their products. Competitors began to market copiers that had a significantly better quality than the copiers that Xerox provided. Customers soon learned this fact. Consequently, they chose competitors' products and Xerox sales were reduced drastically. Subsequently, earlier good profits changed heavy losses. In order to survive, Xerox

26 At the end of the 1980's I conducted a management seminar for a forest company in the north of Sweden. I was told about a client the company had in the United Kingdom. Being a public organization, this client was allowed, after the British Government's decision, to buy only from suppliers having a quality system according to the requirements of the British Standard and approved by the BSI. The consequence was that the forest company invited BSI to make an audit of their paper mill. The auditor from BSI, who had never visited a paper mill before, found that the documentation of the quality system didn't comply with the standard. Consequently, the company could not deliver their paper to this client, in spite of the fact that all previous deliveries had been perfect. My visit to this company confirmed my opinion that quality initiatives must always lead to tangible results, which meant that ISO 9000 might not be the proper way.

had to rapidly improve the quality of their copiers. To get ideas for improvement work, Xerox made a comprehensive study of companies recognized as good models in different areas. This approach was called benchmarking. The result turned out to be very successful to Xerox in the implementation of necessary improvements. The success received a great deal of publicity. There was then a general perception that benchmarking was the way to become excellent in quality.

US industrial companies suffered, in the beginning of the 1980's, by the Japanese competitive progress in the quality field. In order to stimulate the US companies to a more effective and target-oriented quality work, the Malcolm Baldrige National Quality Award was established²⁷. This became the model for a corresponding Swedish award, the Swedish Quality Award, which has been administered by the Swedish Institute for Quality (SIQ) since 1990. As many organizations woke up during the latter part of the 1990's, and found that they had to do something in the area of quality, they adopted the Award as a model for the improvement work. It meant that, as a first measure, an extensive evaluation based on the criteria of the Award had to be carried out. In many places, comprehensive training in the criteria and the associated evaluation methodology was included. This was followed by a detailed description which was then evaluated. Once findings of the evaluation were available (probably after a half year or even a full year from the start) and it was time to begin the true improvement work on the basis of findings, the commitment had slowed down considerably in many places. Hence, the result was often meagre.

As seen from the description above, the period, from the beginning of the 1980's and for more than 20 years later, was characterized by fad-oriented quality approaches. These became the Western response to the Japanese companies' successful quality activities. Some approach came into focus and was for some years highlighted. Then another approach followed. The results were usually poor.

There was nothing necessarily wrong with these trendy approaches and methods to influence quality. The shortcoming laid in the reason for applying them. They were often applied in a general way without first making an analysis of the company's situation to find out what was really needed to achieve greater customer satisfaction, as well as better efficiency of operations. It could be compared to a doctor prescribing a treatment without first making a diagnosis.

In this respect, Six Sigma was different. This approach went back to Motorola's successful improvement work at the beginning of the 1980's (see Chapter 6). Many companies, even

²⁷ Malcolm Baldrige was a US Secretary of Commerce who died in a rodeo accident in 1987. In recognition of his contributions to quality promotion, the US Congress named the Award in his honor.

in Sweden, achieved excellent results through the use of Six Sigma. Common features for these companies were:

- Top management was very much involved in the improvement work and took part in a dedicated way that was visible to the entire organization.
- There was a clear structure of the improvement work. This was based on Joseph Juran's sequence of achieving "breakthrough", a structured and logical process that began with facts and ended with the introduction of a control of the improved process so that any change to the worse was quickly discovered and corrected.
- The improvement work was based on facts of which meant information on the products and processes. An important element was studying variations by means of statistical methods.
- The improvement work was carried out in a project oriented form. On the basis of facts, improvement projects were selected. Focus was on chronic problems, which meant problems that had been there for a long period of time and that were considered to be impossible to solve. For each improvement project an improvement team with the necessary competence was set up.
- There was an organization for the improvement work with clear responsibilities and authorities for activities being an integral part of the improvement process.
- Proper resources were allocated for the improvement work, both related to time and money.
- Massive training in improvement work was carried out.
- Challenging and measurable goals were set up and followed-up.

Six Sigma was a results-focused improvement methodology based entirely on facts about the organization's operations. In this regard, Six Sigma was different from other fashion-oriented approaches, in which beliefs and vague opinions in many cases were the starting point.

In recent years, the concept of Lean has attracted a great interest, primarily in manufacturing organizations. This was an interpretation in the West of Toyota's successful approach in achieving better efficiency and quality. Sometimes it was referred to as the Toyota Production System. The basic idea was to have effective and flexible processes in which defects

and shortcomings were eliminated. The processes were run with attention to customers' needs. In order to achieve this, the personnel in the processes were involved in a tangible way. This was supported by prepared approaches and an associated methodology.

Experience has shown that a combination of Lean and Six Sigma could give good synergetic results. This could be done either by one of the concepts being expanded to include parts of the other or by the two introduced from the beginning in an integral form, Lean Six Sigma.



Lennart Sandholm

Kvalitet

Begrepp ekonomi och teknik

Konstruktionskvalitet. Tillverkningskvalitet. Tillförlitlighetsteknik. Kvalitetssystem. Kvalitetskontroll. Kvalitetskostnader. Kvalitetsbedömning. Kvalitetsstimulans. Leverantörsbedömning. Statistiska hjälpmedel.

The first Swedish book on quality management was published in 1969.

PUBLICATION

BOOKS

Kvalitet. Begrepp, ekonomi och teknik (Quality. Meaning, Economy and Engineering) (In Swedish)

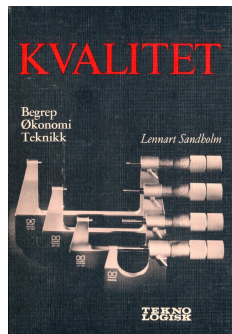
The book was published in 1969, when I was with Electrolux. It contains many examples from the company and it was the first book in Swedish on quality management. It was translated into Danish and Norwegian and published in Denmark 1969 and in Norway 1971.

When the book was published there was no recognized Swedish quality terminology. What would US concepts such as "total quality control" and "quality assurance" be called in Swedish? Now there is a national Swedish standard in this field.

Contents: Quality. Optimal quality. Functions influencing quality. The Quality Circle. Total quality control. Organization. Quality system. Quality costs. Data feedback. Inspection. Statistical tools. Supplier quality. Product quality rating. Human resources and quality. Reliability.



The back.



Editions in Danish and Norwegian.

Sovjetisk kvalitetsteknik (Soviet Quality Engineering)

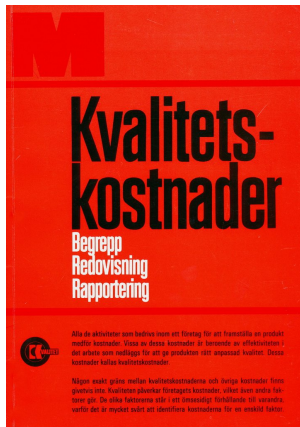
Co-author

(In Swedish)

As a member of a study group of Swedish quality managers I visited the Soviet Union in 1968. The program included visits to institutions and factories in Moscow and Leningrad. Afterwards we prepared a report published by the Royal Swedish Academy of Engineering Sciences.

Kvalitetskostnader – Begrepp Redovisning Rapportering (Quality Costs - Concept Accounting Reporting)

(In Swedish)



To the Research Committee on Quality within the Swedish Association of Metal Working Industries, I proposed that a project on quality costs should be launched. As a result, a project group was set up, which I chaired. Due to difficulties in bringing this project forward, I offered to do the writing. It was published as a book in 1971. It was mainly based on my experience at Electrolux.

Contents: The quality concept. The quality cost concept. Elements of quality costs. Why have information on quality costs? Collecting data on quality costs. Quality cost ratios. Analyzing quality costs. Presenting quality cost data. Manual processing or automatic data processing? Quality cost optimization. Quality cost as a tool in quality control.

Household Appliances

Chapter in J. M. Juran, Quality Control Handbook, 3rd Edition, McGraw-Hill, USA, 1974

In 1970, Joseph Juran asked me to write a chapter on household appliances in the forthcoming third edition of his Quality Control Handbook, which was the internationally recognized reference book in the quality field. The content of my contribution is shown in Chapter 1.

Säkrare produkter genom kvalitetsstyrning (Safer Products Through Quality Control)

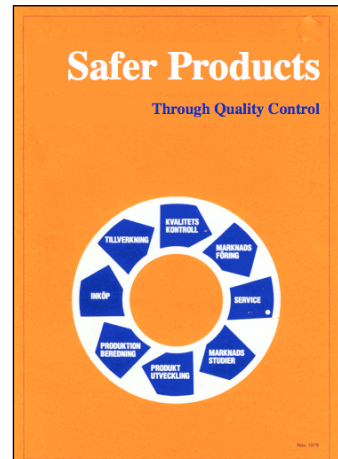
(In Swedish)

In the beginning of the 1970's, product liability issues received much attention. Insurance companies in the USA offered manufacturers insurance policies providing financial protection in product liability cases. This development led Skandia, the largest Swedish insurance company, to do the same. Skandia realized that the risk was influenced by how well the client paid attention to quality. Skandia asked me to write a book on quality control, as well as to conduct seminars for their staff members. The book was published in 1975.

Contents: Product liability. Quality. Quality control. Quality policy and objectives. Organization. Quality system. Quality activities related to the development of products and processes. Documentation of quality requirements. Supplier activities. Manufacturing. Inspection and testing. Marketing. Quality auditing. Human performance. Quality costs. Information feedback.

The book included checkpoints for preventative work, in each section.

An English version was published in 1976.



Kvalitetsstyrning. Ett medel för bättre lönsamhet (Quality Control. A Means to Better Profitability)

(In Swedish)

The Swedish Association of Metal Working Industries provided support to the development of the Swedish metal working industry. They realized that quality related activities were of increasing importance to companies. Hence, they asked me to write a book on this subject. The book was published in 1978.

Contents: Introduction. Design and quality. Manufacture and quality. Inspection and testing. Supplier relations in quality. Judging the quality situation. Improving quality. Organizing for quality. The human factor in quality.

Kvalitetsstyrning (Quality Control)

(In Swedish)

During the latter part of the 1970's, I was assigned by several companies to carry out training of managers. These training sessions were often in the form of workshops (dealt with in Chapter 3). For these sessions, I developed documentation based on the needs and the situation of each company. The documentation was later developed into a book on quality control, published in 1980. Pictures of products from six clients - Alfa-Laval, Astra, Electrolux, Hasselblads, Iggesund, and SAAB – were shown on the front of the book.

In the following years, this book was updated and published in new editions (1988, 1995, 1999, 2001, and 2008). I remember very well when I had added a great deal on Total Quality in a new edition, I wanted to change the title to, "Total Quality", but the publisher reacted negatively. As the book sold so well with the title, "Quality Control", the publisher wanted to keep this title. We agreed that the new edition be given the title, "Quality Control with Total Quality". Later, I added the subtitle, "Business Development with a Focus on Total Quality".

Contents (edition 2008): Quality and total quality. The evolution of total quality. Profitability, cost effectiveness and quality. Good examples. Co-ordination for quality. Development of goods and services. Specifications. Processes. Procurement and quality. Marketing and quality. Inspection and testing. Quality information. Improving quality and performance. Human factor in quality. Quality leadership. Strategic plan for business development.

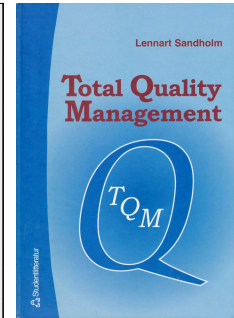


Four editions - 1980, 1999, 2001, and 2008.

Total Quality Management

The book „Quality Control with Total Quality”, was translated into English and published in 1997 under the name ”Total Quality Management”. An updated version was published in 2000.

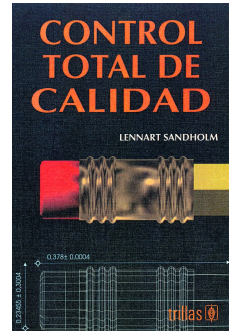
Contents (edition 2000): Quality. The evolution of total quality. Profitability and quality. Good examples. Co-ordination for quality. Development of goods and services. Specifications. Processes. Procurement and quality. Marketing and quality. Inspection and testing. Quality information. Improving quality. Human performance in quality. Quality leadership. Strategic quality plan.



Control Total de Calidad

(In Spanish)

This book is a translation into Spanish of the book "Quality Control with Total Quality". The translation was made by Nimbe Pariso, a Mexican lady who had participated in our long international training course and who later spent some time in Sweden. The book was published by Trillas in Mexico in 1995.



Total Quality Management

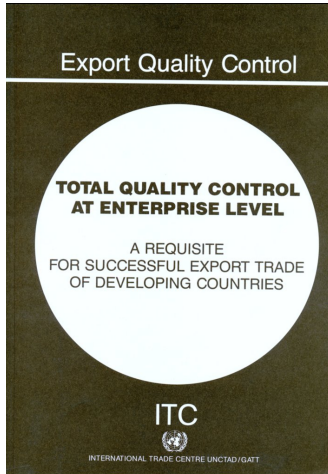
(In Chinese)

This is a Chinese edition of the book above. It was published in China in 1998 by the China Economic Publishing House.



Total Quality Control at Enterprise Level

On behalf of the UN agency ITC (The International Trade Center UNCTAD/GATT) with headquarters in Geneva, I wrote a book on quality control in manufacturing companies. The book was published by ITC in 1986. After publishing this in the English language, versions of eight other languages followed.



Contents: Quality. Specifying quality. Planning for quality. Attaining quality. Inspecting and controlling quality. Following up quality. Improving quality. Managing quality. Human factors in quality. External quality activities.

ITC published the book in 9 languages.

Quality in Developing Countries

Chapter in J. M. Juran, Quality Control Handbook, 4th Edition, McGraw-Hill, USA, 1988

Chapter in Juran's Quality Handbook, 5th Edition, McGraw-Hill, USA, 1999

In the middle of the 1980's, Joseph Juran asked me to write a chapter on quality issues in developing countries for the fourth edition of his handbook. His request was based on my involvement in this group of countries. It was published in 1988. Then, in the fifth edition published in 1999, I contributed an updated chapter on developing countries. To a large extent, my writing was done in India where my wife was working at the Swedish Embassy in New Delhi.

SECTION 37

QUALITY IN DEVELOPING COUNTRIES

Lennart Sandholm

A HETEROGENEOUS GROUP OF COUNTRIES 37.1	NATIONAL EFFORTS FOR QUALITY 37.10
TRADE GLOBALIZATION AND LIBERALIZATION 37.2	STANDARDIZATION 37.10
TECHNOLOGY IN DEVELOPING COUNTRIES 37.2	National Standardization 37.11
FACTORS IMPEDING QUALITY IMPROVEMENT 37.3	Regional Standardization 37.14
Low Purchasing Power 37.3	International Standardization 37.14
Shortage of Goods and Absence of Competition 37.3	CERTIFICATION 37.15
Foreign Exchange Constraints 37.3	Product Certification 37.15
Incomplete Infrastructure 37.3	System Certification 37.17
Inadequate Leadership 37.4	Worldwide Recognition of Certificates 37.18
Inadequate Knowledge 37.4	EXPORT INSPECTION 37.18
INDUSTRIAL DEVELOPMENT AND QUALITY 37.4	LEGISLATION 37.19
Phase I. Subsistence Economy 37.4	NATIONAL PROMOTION 37.19
Phase II. Export of Natural Materials 37.4	National Quality Awards 37.19
Phase III. Export of Processed Materials 37.4	EDUCATION AND TRAINING 37.21
Phase IV. Integrated Manufacture for Domestic Use 37.4	National Level 37.21
Phase V. Export of Manufactured Products 37.5	International Level 37.22
QUALITY ACTIVITIES 37.5	EXTERNAL ASSISTANCE 37.23
QUALITY MANAGEMENT 37.6	Assistance from International Organizations 37.23
Phases of Development 37.6	Bilateral Assistance 37.27
Areas of Interest 37.7	Assistance from Transnational Companies 37.27
UNIDO Quality Program 37.8	INSTITUTIONAL INFRASTRUCTURE 37.27
	National Standards Body 37.27
	National Quality Council 37.28
	PROFESSIONAL SOCIETIES 37.31
	CONCLUSION 37.32
	REFERENCES 37.33

Table of contents of my chapter in Juran's Quality Handbook, Fifth Edition, 1999.

PUBLICATION

Dr. Joseph M Juran – A True Mentorship In Retrospect

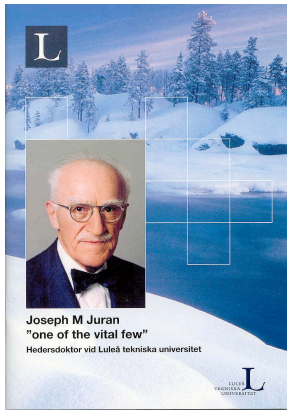
Chapter in, “Juran, Quality and a Century of Improvement”, The Best on Quality Book Series of the International Academy for Quality, Volume 15, Quality Press, USA, 2004

In view of Juran approaching the age of 100 in 2004, IAQ published a book to his tribute. It was edited by Ken Stephens.

Joseph M Juran ”one of the vital few”

Co-author

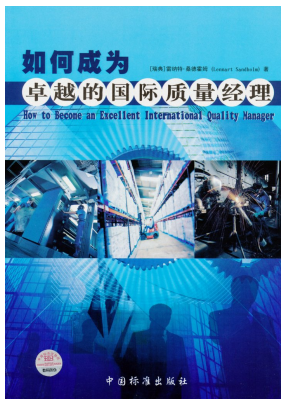
(In Swedish)



The Luleå University of Technology in Sweden conferred an Honorary Doctor on Joseph Juran in 2004 (see Chapter 6). The University then published a book about Juran written by Professor Bengt Klefsjö and myself.

How to Become an Excellent International Quality Manager?

(In Chinese)



This book was written to serve as the course literature for the training of Quality Managers carried out in cooperation with the Shanghai Quality Education Training Center (see Chapter 4). The title was suggested by our Chinese partner, Boon How Chong, in order to increase the interest. The book was published by Standard Press of China in 2006.

COMPENDIA



From the start in 1971, our intention was for the participants in our courses and seminars to receive a solid documentation. It could serve as a good reference in their work after the training. The documentation included, in addition to books, several compendia especially prepared for the respective course or seminar.

A selection of compendia is shown below. These were prepared to serve as documentation for the training courses and seminars conducted by Sandholm Associates.

Total Quality Management

This compendium included three binders and was given to the participants in the 10-week international training course financed by BITS. For information, reference is made to the chapter on international activities (Chapter 5). It was an outgrowth of the compendium used in the former UNIDO course "Quality Control in Industry".

Contents: Introduction. Statistical tools. Metrology. Inspection and testing. Reliability and dependability. New-product quality. Quality specifications. Supplier activities. Manufacture of quality. Customer relations. Quality assessment. Quality audit. Economics of quality.

Quality data. Improving quality. Human factors in quality. Quality leadership. Quality system. Organization for quality. Quality consulting. Developing countries and quality.

Kontrollteknik och kontrollberedning (Quality Control Engineering and Inspection Planning)

(In Swedish)

For background related to this compendium, reference is made to Chapter 3.

Contents: Quality control. Quality activities in the development of new products and processes. Quality requirements. Manufacture and quality. Inspection and testing. Studying the manufacturing process. Inspection efficiency. Locating and designing the inspection workplaces. Feedback and use of inspection data. Operator inspection. Inspection planning. Planning of incoming inspection. Planning of in-process inspection. Planning of final inspection. Planning of product quality audit. Quality improvement.

Leverantörskvalitet (Supplier Quality)

(In Swedish)

Contents: The relationship between customer and supplier. Procurement documentation. Supplier selection. Supplier assessment. Joint quality planning. Supplier quality assurance activities. Initial samples. Incoming inspection. Supplier certification. Complaints. Supplier rating.

Tillämpad statistisk kvalitetsstyrning (Applied Statistical Quality Control)

(In Swedish)

Contents: Process variation. Statistical methods. Interpretation of data. Probability distributions. Process output. Tools for process studies. Process capability studies. Process control by variable charts. Process control by attribute charts. Acceptance inspection by attributes. Acceptance inspection by variables. Computer applications.

Kvalitetsrevision (Quality Auditing)

(In Swedish)

Contents: The company and quality. Quality activities. Quality system. Documentation. Quality audit. Quality assessment. System quality audit. Supplier assessment. Process quality audit. Product quality audit.

The documentation included information on a fictitious company to be analyzed by the course participants.. The material was mainly based on my experience as a consultant to various companies.

Kvalitetssäkring i produktionen (Production Quality Assurance)

(In Swedish)

Contents: The company and quality. Production and ISO 9000. Production planning. Factors of dominance. Process output and process capability. Process capability studies. Manufacturing analysis. Zero defects in manufacture. The operator and quality. Process control. Inspection. Inspection planning. Quality audits. Data feedback Quality improving.

Kvalitetsbristkostnader (Poor Quality Costs)

(In Swedish)

This is a development of my book on quality costs (see above).

Contents: Fundamental principles of industrial costing and accounting. What is the meaning of quality costs and poor quality costs? Why to know poor quality costs? "Halving the poor quality costs in three years!" Elements of quality costs and of poor quality costs.. Collecting the cost data. Cost ratios. Analyzing poor quality costs. Cost data feedback. Optimization.

ISO 9000 – i praktiken (ISO 9000 - In Practice)

(In Swedish)

Contents: The company and quality. Quality activities. Quality system. Quality system requirements. ISO 9000. Internal quality system in accordance with ISO 9000. Quality system documentation. Quality auditing. Certification. Importance of quality system in accordance with ISO 9000.

ISO 9001:2000. Kommentarer och tillämpning (ISO 9001:2000. Comments and Application)

(In Swedish)

Each clause of the standard is interpreted and examples of applications are given.

STUDY AND WORK MATERIAL

Chapter 3 describes how in-house training can be carried out in client organizations. To support the training, study and work training packages were developed containing work-book, leader's manual, literature and visual aids. Various packages of this kind were offered.

Mot noll fel! (Towards Zero Defects!)

This was published in 1992 and is described in Chapter 3. Later versions in English and Chinese were published.

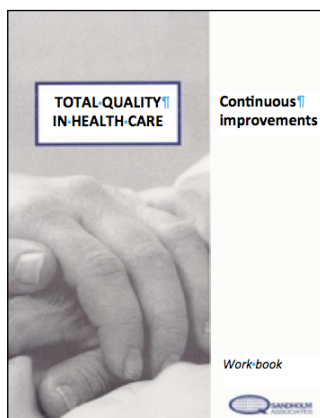
Total tjänstekvalitet (Total Service Quality)

This is the material, as per above, adopted to service organizations. It was published in 1994 and was available in English and Chinese.

Fokus på kvalitet – ständiga förbättringar (Focus on Quality - Continuous Improvement)

This material was published in 1999 in order to meet the need for training in structured improvement work. Versions for different sectors were provided - manufacturing, services, healthcare, and local government activities. Translated into English and Chinese.

Totalkvalitet i sjukvården (Total Quality in Healthcare)



This version for healthcare was published in 1995. It was used, among others, by Danderyd Hospital and Lund University Hospital (see Chapter 4).

Contents: 1. What is quality for us? 2. How do we work in total with quality? 3. How is quality a part of our daily work? 4. How do we obtain information on quality? 5. How do we improve quality? 6. How do people influence quality? 7. How do we proceed?

The workbook for the training package "Total Quality in Healthcare".

Sex Sigma Förbättringar (Six Sigma Improvements)

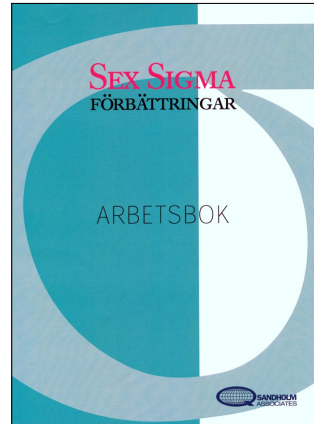
Co-author

This study and work material was developed for in-house training of personnel involved in Six Sigma improvement teams. The material included visual aids and a workbook with sections devoted to the process of Six Sigma:

1. DEFINE
2. MEASURE
3. ANALYZE
4. IMPROVE
5. CONTROL

In addition three appendices:

- A. IMPROVEMENTS THROUGH SIX SIGMA
- B. PROJECT WORK
- C. IMPROVEMENT TOOLS



ARTICLES AND CONFERENCE PAPERS

The following is a selection of articles and papers published and presented internationally.

Improving Quality Assurance

European Organization for Quality Control, Annual Conference, Rotterdam, Holland,
6-9 September, 1965

Product Quality Rating

(Term paper supervised by Harold Dodge)

Rutgers University, New Brunswick, New Jersey, USA, December, 1965

Human Factors in Quality

European Free Trade Association, Conference, Geneva, Switzerland, 21-23 April, 1971

PUBLICATION

Quality, Quality Motivation, Reliability and the Consumer

United Nations Industrial Development Organization, International Workshop, Cairo, Egypt, 30 November – 9 December, 1971

United Nations Training Programs in Quality Control

EOQC-Quality, Rotterdam, Holland, 2, 1976

Top Management and Quality

European Organization for Quality Control, Annual Conference, Copenhagen, Denmark, June, 1976

Job Reform in Sweden and its Effect on Quality

(In Japanese)

Statistical Quality Control, JUSE, Tokyo, Japan, June, 1976

UNIDO In-Plant Group Training Programs on Quality Control for Developing Countries

International Quality Conference, Buenos Aires, Argentina, 14-17 November, 1976

Quality Control in Industry

The Commonwealth Science Council, International Workshop, Accra, Ghana, 10-16 May, 1978

UNIDO In-Plant Group Training Programs on Quality Control for Developing Countries

The Commonwealth Science Council, International Workshop, Accra, Ghana, 10-16 May, 1978

Quality and Top Management

Philippine Society for Quality Control, National Convention, Manila, Philippines, 9-10 October, 1978

United Nations' Training Programs on Quality Control for Developing Countries

International Academy for Quality and Union of Japanese Scientists and Engineers, International Conference, Tokyo, Japan, October, 1978

PUBLICATION

Developing Countries and Quality

Introductory Speech, International Academy for Quality, Frankfurt, Germany, 21 June, 1980

Japanese QC Circles – A Remedy for West's Quality Problems?

(In Japanese)

Statistical Quality Control, JUSE, Tokyo, Japan, 10, 1981

Education and Training in Developing Countries

American Society for Quality Control, Annual Quality Congress, San Francisco, USA, May, 1981

Quality in Developing Countries

European Organization for Quality Control, Annual Conference, Paris, France, 8-12 June, 1981

Japanese Quality Circles – A Remedy for the West's Quality Problems?

Quality Progress, February, 1983

Managing for Quality

Australian Organization for Quality, Annual Conference, Gold Coast, Australia, 1986

Training for Management Involvement

International Academy for Quality and Union of Japanese Scientists and Engineers, International Conference, Tokyo, Japan, 20-21 October, 1987

Quality for Top Management

Instituto Uruguayo de Normas Tecnicas, Top Management Seminar, Montevideo, Uruguay, 1989

Managing for Quality

International Academy for Quality, International Conference, Buenos Aires, Argentina, 1989

PUBLICATION

In-House Training in Quality – A Must for Attaining Quality Leadership

European Organization for Quality, Annual Conference, Prague, Czechoslovakia, 1991

Training in Quality – From Board Room to Shop Floor

Juran Institute, Euroqual Conference, Amsterdam, Holland, 1991

Effective Quality Strategies

International Academy for Quality and European Organization for Quality, World Quality Congress, Helsinki, Finland, June 1993

The Current State of Quality: Views from a Pioneer

The Quality Observer, USA, 1993

Attaining Quality Leadership Through Effective Strategies

Comité Nacional de Calidad, Montevideo, Uruguay, 1994

Massive Training in Quality – A Must for Attaining Quality Leadership

Comité Nacional de Calidad, Montevideo, Uruguay, 1994

Attaining Quality Leadership Through Effective Strategies

Australian Organization for Quality, Annual Conference, Melbourne, Australia, 1994

Quality in the Year 2000

American Society for Quality, Annual Quality Congress, Las Vegas, USA, 24-26 May, 1994

Can TQM Lead to Maturity in Quality?

International Academy for Quality and Japanese Union of Scientists and Engineers, Pre-conference Workshop, Yokohama, Japan, 15 October, 1996

In-House Training in Total Quality – A Means for Attaining Market Leadership

International Academy for Quality and Japanese Union of Scientists and Engineers, World Quality Congress, Yokohama, Japan, 16-18 October, 1996

In-House Training – A Prerequisite for Empowerment

Philippine Society for Quality Control, International Conference, Manila, Philippines, 1996

PUBLICATION

Quality Leadership in the Year 2000 and Beyond

Institute of Directors, World Congress on Total Quality, New Delhi, India, 1996

Management Training – A Prerequisite of TQC

Best on Quality, International Academy for Quality, USA, 1996

The Quality Direction in Scandinavia

(Co-author)

Best on Quality, International Academy for Quality, USA, 1996

Mature in Quality - Still to Come

Silver Jubilee Book, Sandholm Associate, 1996

In-House Training in Total Quality

Institute of Directors, World Congress on Total Quality, New Delhi, India, 16-17 February, 1997

Maturity in Quality is on the Way in Sweden

Best on Quality, International Academy for Quality, USA, Vol. 9, 1998

Quality Leadership

The Association of QC Headquarters of Thailand and Ministry of Industry, International Quality Conference, Bangkok, Thailand, 8-10 December, 1999

Effective Strategies for Quality

Singapore Productivity and Standards Board, International Exposition of Quality Circles, Singapore, 23-25 November 1999

Trendy vs. Effective Quality Strategies

TQM Magazine (IAQ Issue), United Kingdom, Vol. 11, 1999

Quality in Developing Countries

Best on Quality, International Academy for Quality, USA, Vol. 10, 1999

PUBLICATION

Strategic Quality Planning

Nordic School of Quality Management, Sweden, 1999

TQM in the New Millennium: An IAQ Project Report

(Co-author)

Best on Quality, International Academy for Quality, USA, Vol. 11, 2000

Cost of Quality Implementation – the Swedish Experience and its Lessons for Singapore Organizations

(Co-author)

Singapore Quality Institute, Yearbook, 2000

Quality Movement in Developing Countries

Universidad de la Republica, Montevideo, Uruguay, 30 October, 2000

Quality Leadership

Instituto Uruguayo de Normas Técnicas (UNIT), Montevideo, 24 October, 2000

Developments in Quality Management

Instituto Uruguayo de Normas Técnicas (UNIT), Montevideo, 27 October, 2000

Defining the Role of a Quality Manager

Best on Quality, International Academy for Quality, USA, Vol. 12, 2001

Do we Need a Quality Manager?

4th International QMOD Conference, Linköping, Sweden, 12-14 September, 2001

To the Memory of Dr. Kaoru Ishikawa

Best on Quality, International Academy for Quality, USA, 2002

Strategic Business Development

8th Asia Pacific Quality Organization Conference, Beijing, China, 16-18 September, 2002

12 Requirements for Six Sigma Success

(Co-author)

Six Sigma Forum Magazine, ASQ, USA, November, 2002

PUBLICATION

Leadership for Excellence – A Task for the Top Executive. Who else?

Asian Pacific Quality Organization, CEO Forum on Quality, Beijing, China, 15 September, 2002

Business Development with a Focus on Quality

Hungarian Quality Week, Budapest, Hungary, 4 November, 2002

Make the Mystery of Six Sigma Clear

Shanghai Academy of Quality Management, Conference, Shanghai, China, 25 November, 2002

Strong Tendency of Quality Improvement

Shanghai 6 Sigma Exhibition & Forum, Shanghai, China, 26 November, 2002

Excellence In Quality Leads To Sustainable Profitability

Journal of Quality Science, Shanghai Academy of Quality Management, Shanghai, China, No. 1, 2004

Dr. Joseph M Juran – A True Mentorship In Retrospect

(Chapter in Juran, Quality and a Century of Improvement)

The Best on Quality Book Series of the International Academy for Quality, Quality Press, USA, 2004

Strategic Responses for Customer Satisfaction

Sarawak's 3rd International Quality Congress, Kuching, Malaysia, 22-23 September, 2004

Strategic Plan for Sustainable Excellence

9th World Congress for Total Quality Management, Abu Dhabi, U.A.E., 27-29 September, 2004

Tribute to Dr. J. M. Juran

(Juran Celebration)

Juran Institute, Stanford, Connecticut, USA, 6 May, 2004

PUBLICATION

Business Success - Satisfying Needs for Competence Development in TQM and Six Sigma

10th International Conference on ISO 9000 & TQM, Shanghai, China, 28-30 March, 2005

Is there a Role for a Quality Manager?

International Conference on Quality, Tokyo, Japan, 13-16 September, 2005

Strategies for Successful Six Sigma Implementation

(Co-author)

International Conference on Quality, Tokyo, Japan, 13-16 September, 2005

Effective Business Improvement – A Committed Top Management

Chamber of Industry, Montevideo, Uruguay, 14 November, 2005

Effective Business Improvement

Fundecce, Buenos Aires, Argentina, 29 November, 2005

Is there a Role for a Quality Manager?

Fundecce, Buenos Aires, Argentina, 29 November, 2005

Strategic Plan for Sustainable Excellence

Total Quality Management, United Kingdom, October-November, 2005

Effective Business Improvement

Shanghai Academy of Quality Management, Shanghai, China, 2006

Business Improvement through Quality

FEFCO (European Federation of Corrugated Board Manufacturers), Technical Seminar, Nice, France, 25 April, 2007

The Widening Role of Quality Managers

International Association for Quality Managers and Auditors, International Quality Manager Forum, Almaty, Kazakhstan, 20-22 August, 2008

Achieving Excellence

International Association for Quality Managers and Auditors, International Quality Manager Forum, Almaty, Kazakhstan, 20-22 August, 2008

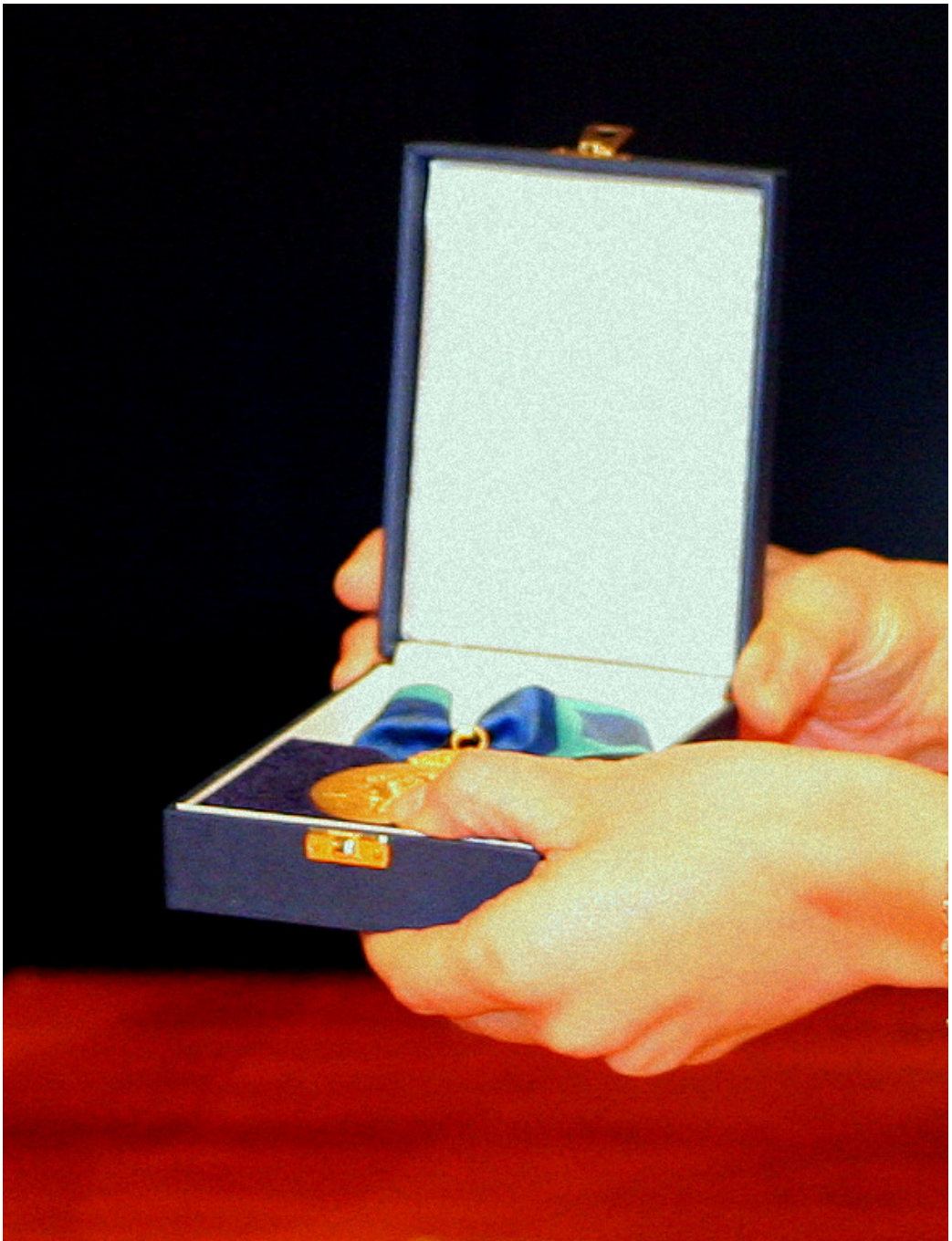
PUBLICATION

Business Improvement Through Quality

International Quality Convention IQC 2008, Bangkok, Thailand, 25-28 November, 2008

Top Leaders' Role in Strategic Quality Initiatives

International Quality Convention IQC 2008, Bangkok, Thailand, 25-28 November, 2008



The Royal Swedish Academy of Engineering Sciences, Gold Medal in 2006.

RECOGNITIONS

SWEDEN

The Royal Swedish Academy of Engineering Sciences

Gold Medal in 2006

"Gold Medal to Professor Lennart Sandholm for most outstanding achievements for the development and education in the field of total quality in Sweden and internationally."



The Medal was presented by Crown Princess Victoria at the gala gathering on October 27, 2006.

RECOGNITIONS



The presentation of the Medal took place in the Stockholm Concert Hall, after that banquet in the City Hall. The presentation was done in the same way as the presentation of the Nobel Prizes.

Guldmedalj till:

Civilingenjör och professor Lennart Sandholm för synnerligen framstående insatser för utveckling och utbildning inom området totalkvalitet i Sverige och internationellt.

– Jag blev väldigt glad. Roligt att ett område som kvalitet uppmärksammas, eftersom det finns så mycket att göra, säger Lennart Sandholm.

Han är den förste västerlänningen som bjöds in till Kina för att utbilda i kvalitetstänkande, och det redan 1981. För sina insatser belönades han med medalj och "Sandholm control" blev ett begrepp inom den kinesiska industrin.

KVALITETSFRÅGOR HAR GÅTT som en röd tråd genom hans liv ända sedan 1958 då han började på Elektroheliös. Där fick han i uppgift att se till att antalet reklamationer minskade. Han blev då väldigt klar över att inget förbättringsarbete kan baseras på troende och tyckande.

Det är fakta som avgör.

Drivkraften har varit att visa hur mycket pengar det går att spara på medvetet kvalitetstänkande inom företag, organisationer och sjukhus. Hans Werthén är hans föredöme och den amerikanske kvalitetsgurun Dr J M Juran hans mentor, kollega och vän.

– Hans Werthéns ledarskap har betytt mycket. Han satte likhetstecken mellan ledarskap och att åstadkomma resultat, vilket präglade mig starkt.

UNDER ÅRENS LOPP har Lennart Sandholm hunnit hålla kurser och genomfört utbildningar i över 40 länder i alla världsdelar. Uppdragsgivare har bl a varit FN-organet UNIDO och Sida. Han har gett ut flera böcker. En av dem, *Total Quality Control At Enterprise Level*, är översatt till nio språk. Ett stort antal diplom och hedersbetygelser vittnar om all uppskattning han fått internationellt.

– Kvalitet är gränslöst och jag är



Lennart Sandholm Foto: Anders Kollberg

stolt över att ha påverkat så många människor runt om i världen, i deras

syn på kvalitet och förbättringsarbete.

Hans motto är kort och gott: Det är resultatet som räknas.

LENNART SANDHOLM BLEV civilingenjör vid Chalmers 1955 och teknologie licentiat vid KTH 1963. Han studerade kvalitet i USA 1965–1966 vid Rutgers University, som stipendiari för Sverige-Amerika Stiftelsen. Han blev kvalitetschef vid AB Elektroheliös 1961. I samband med fusionen med Electrolux 1963 inrättades en central kvalitetsavdelning för hela Electroluxkoncernen som Sandholm ledde.

Han grundade 1971 konsult- och utbildningsföretaget Björklund & Sandholm AB. Idag heter det Sandholm Associates AB och är inriktat på verksamhetsutveckling med fokus på totalkvalitet. Under 2005 lämnade han befattningen som vd i företaget och blev dess styrelseordförande.

/Birgitta Björkskär

Interview in the Academy's magazine, IVA-aktuellt Autumn 2006.

INTERNATIONAL ORGANIZATIONS

International Academy for Quality (IAQ)

Academician, 1980

International Academy for Quality (IAQ)

Founders Medal, 2008

“For Exceptionally Meritorious Service to the Academy as Chairman Examining Committee.”

International Academy for Quality (IAQ)

Honorary Member, 2010

“Lennart Sandholm has been elected to the rank of Honorary Member in recognition of outstanding contribution to the science, the technology, the economics, and the management of the profession of quality, which place him among the international leaders dedicated to the improvement of the quality products and services for the benefit of mankind and a progressively higher standard of life for all.”

European Organization for Quality (EOQ)

Honorary Member, 2014

“For his successful and exceptional contribution to the EOQ in the field of quality.”

Asia Pacific Quality Organization (APQO)

Harrington-Ishikawa Medal, 2002

“Given to a quality professional that has been an outstanding contributor to the advancement of quality in the Asian Pacific region.”

The Medal got its name from Jim Harrington and Kaoru Ishikawa. Here Harrington congratulates at the medal presentation at the APQO conference in Beijing in 2002.



RECOGNITIONS

ARGENTINA

La Fundación Empresaria para la Calidad y la Excelencia, Argentina

Honorary Member (Miembro Honorario), 2010

“For your significant contributions to the Foundation objectives and to the development of quality in Argentina over the past 25 years.”

CHINA

China Association for Quality

Honorary Advisor, 1994

Shanghai Academy of Quality Management

Honorary Professor, 2005



The Professorship Diploma was presented by Professor Tang Xiaofen who in 1989 attended our international training in Sweden.

Shanghai Association for Quality

Magnolia Quality Contribution Award, 2005

RECOGNITIONS

The Award was presented at the international conference in Shanghai in March 2005. My student Miflora Gatchalian from the Philippines received the same award.



JAMAICA

Jamaica Society for Quality

Honorary Member, 1992

PHILIPPINES

Philippine Society for Quality Control

Honorary Member, 1976

The Honorary Membership Diploma was presented at a dinner with the Board of the Philippine Society for Quality Control in connection with my course in Manila in 1976. On the left Ken Stephens who then worked for Georgia Tech in the Philippines.



RECOGNITIONS

UNITED STATES

American Society for Quality Control (ASQC)

Fellow, 1978

American Society for Quality Control (ASQC)

Grant Medal, 1984

“For his initiative and leadership in developing and presenting educational programs in the field of quality in the Nordic countries of Europe and in developing countries on all continents.”

The medal was presented at the ASQC Conference in Baltimore, Maryland 1985.

American Society for Quality Control (ASQC)

Lancaster Medal, 1994

“For outstanding service to the promotion of quality throughout the world. Lennart Sandholm has unselfishly given his time and exceptional expertise to developing countries in all areas of the world and provided new insights, concepts, and methods to thousands of quality professionals.



Address of thanks at the conference in Cincinnati, Ohio in 1995 after receiving the Lancaster Medal. Seated from left Ronald Snee, Spencer Hutchens, Jack West (ASQ Chairman) and David Luther (ASQ President).


American Society for Quality (ASQ)

Distinguished Service Medal, 2008

RECOGNITIONS

“For outstanding promotion of the philosophy, methods, and techniques of Total Quality Management in Europe and Asia and in recognition of a forty-year career in teaching, coaching, and developing the next generation of quality professionals.”


There were three medalists – besides me, Marcos Bertin from Argentina and Takanori Yoneyama from Japan. The presentation took place at the ASQ Conference in Houston, Texas in 2009.



DISTINGUISHED SERVICE MEDALISTS

The Distinguished Service Medal represents the highest distinction that can be accorded by the American Society for Quality for service. The medal honors the lifetime contribution of any person who has been recognized as a long-term enabler, catalyst, or prime mover in the quality movement. It is granted only to those people who have clearly driven progress by promulgation of quality principles, methods, or science for the good of society at large or who have exemplary, sustained service on behalf of ASQ that has benefited the whole Society.

The ASQ board of directors approved three new Distinguished Service Medalists at its February 2008 meeting.




Marcos E. J. Bertin

Marcos E. J. Bertin founded and directed a corporate governance consulting practice with Argentine-based Voyer International. Due to his expanding interest in this subject, the World Bank invited him to participate in its global governance activities which led Bertin to see a need for a more coherent statement of the application of quality to corporate governance. He initiated an IAQ global research project which led to the publication of the final report by GOAL/QPC that was published simultaneously in English, Portuguese, and Spanish and endorsed by both the Global Corporate Governance Forum and the Brazilian Institute for Corporate Governance (IBGC).

Bertin, an ASQ Fellow since 1969, has been honored previously with the ASQ Lancaster Medal. His citation as a Distinguished Service Medalist reads as follows:

“For exceptional personal dedication to the global cause of quality improvement and for his enthusiastic commitment and thought leadership in extending the reach of quality into the corporate boardroom.”




Lennart Sandholm

Lennart Sandholm is chairman of his own consulting company, Sandholm Associates AB. Sandholm's quality teaching has personally touched more than 30,000 people across the world and he has always had a special interest in the promotion of quality methods across the developing world—with special emphasis on the Asia-Pacific region during the past 30 years. The most notable recognition he has been accorded was when Crown Princess Victoria of Sweden recently presented him with the Gold Medal of the Royal Swedish Academy of Engineering Sciences—a medal that is the equivalent of the National Technology Medal in the United States which has only been awarded to Dr. W. Edwards Deming and Dr. Joseph M. Juran of our quality community.

Sandholm, an ASQ Fellow since 1978, has been honored previously with the ASQ Grant and Lancaster medals. His citation as a Distinguished Service Medalist reads as follows:

“For outstanding promotion of the philosophy, methods, and techniques of Total Quality Management in Europe and Asia and in recognition of a 40-year career in teaching, coaching, and developing the next generation of quality professionals.”



Takanori Yoneyama

Takanori Yoneyama held the top leadership responsibility as chief executive officer and chairman of the board of one of the largest Japanese-based multinational companies—Konica Minolta. He has been an active leader in the Japanese quality movement, serving as president of the Japanese Society for Quality Control (JSQC) and the Union of Japanese Scientists and Engineers (JUUSE). Recognizing the need to embrace Six Sigma methods in a unique way that would appeal to Japan, Yoneyama directed that Dr. Noriaki Kano take the Six Sigma approach presented by Gregory H. Watson in 2001 to JUUSE and incorporate this in the JUUSE standard for total quality management (TQM).

Yoneyama has been honored previously with the ASQ Ishikawa Medal. His citation as a Distinguished Service Medalist reads as follows:

“For distinguished leadership of the Japanese quality movement and a 40-year career as a practicing quality professional and chief executive for Konica and for personally demonstrating the pragmatic marriage of quality and business in management.”

Introduction of the recipients of the ASQ Distinguished Service Medal 2008.

RECOGNITIONS

URUGUAY

Instituto Uruguayo de Normas Técnicas (UNIT)

50th Anniversary Plaque, 1989

“In recognition of his valuable contribution to the development of quality in our country.”

Instituto Uruguayo de Normas Técnicas (UNIT)

Honorary Member, 2000

“En reconocimiento a su aporte al desarrollo de la Calidad en el Uruguay y a su permanente colaboración.”

Universidad de la Republica, Montevideo

Honorary Doctor, 2000



Honorary Doctor at Universidad de la Republica, Montevideo, Uruguay in 2000. The Dean of the Engineering Faculty Maria Simón presented the Diploma on October 30, 2000.

RECOGNITIONS

REPUBLICA ORIENTAL DEL URUGUAY



UNIVERSIDAD DE LA REPUBLICA

FACULTAD DE INGENIERIA

POR CUANTO : EL CONSEJO DE FACULTAD DE INGENIERIA EN SU SESIÓN
DE FECHA TREINTA Y UNO DE AGOSTO DE DOS MIL, EN ATENCION A LOS
MERITOS QUE CONCURREN EN LA PERSONA DEL

Doctor Lennart Sandholm

LE HA INVESTIDO CON LA DIGNIDAD DE

Doctor Honoris Causa

POR TANTO : LA DECANA DE LA FACULTAD DE INGENIERIA EXPIDE EL
PRESENTE DIPLOMA QUE ACREDITA ESA DIGNIDAD



DADO EN MONTEVIDEO, A LOS TREINTA DIAS DEL MES DE OCTUBRE DE
DOS MIL.

Maria Simón
Decana



NAME INDEX

- Abdrakhmanov, Azat 126
 Ahern, Mike 123
 Akao, Yoji 195
 Amble, Lars 78
 Andreen Sachs, Magna 55, 91, 96
 Andrews, Horace 28, 29
 Anttila, Juhani 199
 Asefa, Sahle 106
 Askergren, Jutta 93
 Aubrey, Chuck 55, 82, 196
 Aune, Asbjörn 55, 199, 204, 205
 Baldrige, Malcolm 215
 Barnevik, Percy 28
 Benia, Pablo 119
 Berggren, Bo 205
 Bertin, Alicia 198
 Bertin, Marcos 55, 188, 193, 195, 198, 247
 Björklund, Olle 39, 40, 51, 68, 170
 Blackiston, Howland 51, 157
 Blackiston, Joy 157
 Borel, George 194
 Borzon, Trish 199
 Box, George 30
 Bush, George 153
 Carlsson, Janne 205
 Carlsson, John 139
 Case, Ken 198
 Castro, Fidel 116
 Chaney, Frederick 72
 Chau, Yiu-Hang 106
 Chong, Boon How 136, 137, 138, 140, 226
 Chou, Yuting 138
 Cole, Robert 161
 Collins, Michael 45
 Conti, Tito 196
 Dahlgaard, Jens 199
 De-Fremery, J. D. N. 194
 Deming, Edwards 161, 174, 212
 Dershin, Harvey 82, 91, 92
 Dodge, Harold 28, 29, 198, 231
 Edelstam, Harald 116
 Ericsson, Hans 49, 109, 112, 114
 Ericsson, Sune 145
 Feigenbaum, A V 14, 190, 194, 198, 210, 213
 Fernlund, Ingemar 189
 Folkes, Patrick 155
 Forslund, Lennart 95
 Freivalds, Laila 189
 Frisinger, Ingemund 188
 Gado, Yehya 106
 Galvin, Robert 49, 152, 166, 167
 Gatchalian, Miflora 245
 Gilbertson, Muriel 182
 Godfrey, Blan 51, 53-55, 72, 73, 80, 96, 154, 193, 196, 197, 204, 205
 Godfrey, Judy 73
 Grayson, Jackson 195
 Gryna, Frank 55, 68, 69, 72, 108, 157, 170
 Gummesson, Evert 55
 Gustavsson, Jörgen 15, 48, 51, 52, 60, 61, 63, 81
 Harrington, Jim 188, 243
 Harris, Douglas 72
 Hartz, Ove 55, 199, 204, 205
 Hasselblad, Victor 45
 Hiller, Lennart 51
 Hunter, Stewart 30
 Hurd, Walter 188
 Hurley, Alan 74

NAME INDEX

- Hutchens, Spencer 188, 196, 246
Hutchins, David 51, 55, 74, 188
Hökerberg, Annika 55, 122
Hökerberg Sandholm, Fredrik 7, 122, 199
Ishikawa, Ichiro 174
Ishikawa, Kaoru 72, 144, 169, 174-179,
184, 185, 188, 191, 192, 194,
199, 212, 236, 243
Ishikawa, Keiko 179
Jie, Wu 139
Johansson, Karl-Edward 201
Johnstone, Tom 61, 82
Jonson, Olle 188, 194
Juran, Joseph 14, 18, 24, 26, 37, 40, 41, 45,
47, 50, 51, 53, 55, 65-69, 72, 92, 96, 108,
112, 123, 133, 142-171, 173, 174, 182,
185, 188, 189, 191-193, 199, 205, 210,
211, 216, 220, 224-226, 237
Juran, Sadie 143, 168
Kanjapanyakom, Rachavarn 118, 205
Kano, Noriaki 53-55, 59, 61, 72, 82,
163, 172, 175, 177, 178, 180, 181, 184,
188, 193, 195, 197, 205, 212
Kawai, Ryoichi 188
Klefsjö, Bengt 159, 226
Kofoed, Carl-Anker 143, 168, 194, 195
Kogure, Masao 194
Kondo, Yoshio 55, 72, 181, 182, 188, 194,
195
Kume, Hitoshi 188
Lal, H 55
Lancaster, Jack 193, 194, 246
Larsson, Stig 205
Lee-Young, Ngeon 106
Li, Kwai-Piu 106
Lindberg, Lars 91, 99, 205
Lindström, Johnny 53-55
Liu, Yuanzhang 55, 128, 129, 131
Lu, John 139
Lundh, Björn 99
Luther, David 246
Maar, John 82
Mahmoud, Hashim 106
Masing, Walter 194, 195
Mayya, George Sheikh 106, 155
Mazhar, Yusef 111, 112
Mengistu, Haile Marian 120
Nixon, Frank 194
Noguchi, Junji 161, 174, 188
Ott, Ellis 28-31
Ott, Virginia 28
Palme, Olof 124
Pareto, Vilfredo 163
Pariso, Nimbe 223
Park, Su Mi 199
Paynor, Edgardo 106
Pinochet, Augusto 116
Port, Otis 161
Quayle, Dan 153
Ramos, Celia 155
Rehnqvist, Nina 94
Renhui, Chen 128
Rice, Condoleezza 140
Ringenson, Stig 111
Rodriguez, Maria 116, 155
Romig, Harry 29
Saccone, Carlos 108, 118, 119
Sahlin, Mauritz 75, 139
Saleheen, Syed 106
Sandberg, Rolf 41, 44
von Sanden, Rudiger 119
Sandholm (Cedlöf), Malin 156
Sandholm (Lindvall), Petra 156
Sandholm (Heijne), Åsa 156
Sanyadechakul, Pairoj 106, 117
Scharp, Anders 151, 152, 188
Schilling, Edward 30
Schonberger, Richard 61, 72, 73, 82
Seghezzi, Hans Dieter 195
Shewhart, Walter 29

NAME INDEX

- Sierra, Enrique 55
- Simón, Maria 248
- Sissingh, Albert 112
- Smith, Bill 49, 50
- Snee, Ron 30, 246
- Sohlenius, Gunnar 202
- Stephens, Gina 198
- Stephens, Ken 7, 26, 30, 188, 198, 226, 245
- Ströyer, Paul 20, 23
- Söderlund, Kjell 106
- Sörqvist, Lars 51, 52, 60, 61, 63, 81, 89, 197, 204, 205
- Taguchi, Genichi 188
- Terelius, Manne 39, 40
- Teresa, Mother 122, 123
- Tilley, Brian 55, 74
- Tong, Catherine 137
- Turello, Umberto 194
- Vasquez, César 119
- Verjänkörva, Jorma 55, 204, 205
- Victoria, Crown Princess 241
- Wachniak, Ray 188
- Wallenberg, Marcus 15, 31
- Warne, John 188
- Watson, Greg 61, 82, 193, 196, 197
- Wei, Susan 139
- Welch, John 80
- Werthén, Hans 19, 31-35
- Wescott, Mason 28
- West, Jack 246
- Wladdimiro, Manuel 116
- Wollart, Nils 11, 12
- Xiaofen, Tang 135, 138, 139, 244
- Xiaoping, Deng 127
- Yang, Daling 127
- Yi, Wu 140, 141
- Yoneyama, Takanori 178, 182, 183, 247
- Yousif, Watheqa 106, 117, 155
- Zaludova, Agnes 26, 55, 188, 194
- Zamani, Mohammad 106
- Zhou, Frank 139
- Zhou, Jinfu 127, 129, 130
- Zhu, Qwen 139
- Öster, Jerry 45
- Östling, Leif 61, 82