

Promoting Quality Awareness Based on Performance Measurements

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Abstract

Performance measurement is increasingly becoming a vital issue for promoting quality management within an organization. This research proposes a new performance measurement approach, called the Hierarchically Associated Performance Measurement, for the organizations which emphasize long term quality thrust through a balanced interface between the quality efforts of various units. The proposed approach is unique in that it considers relationships between internal quality activities and national quality award criteria and that it identifies and utilizes the quality responsibilities of functional units in order to encompass organizational roles in the evaluation process. The approach is illustrated via a numerical evaluation of a fictitious organization.

Performance Measurement in Quality Management

- Performance measurement in Quality Management :
 - A systematic review of the organization's activities and results within the scope of quality management.

- The purpose of performance measurement :
 - To identify organizational strengths and areas for improvement,
 - To provide a clear focus for improvement activities, and
 - To recognize the employees efforts for achieving the organizational goals and objectives.

Recent Trend

■ Recent Trend :

- A dramatic increase in interest in performance measurement among American and European organizations.
- It is backed by the increased number of industry inquiries, purchases of Self-Assessment booklets and interest in training courses of national quality awards. [Gallagher.(1996)]

■ Practical issues of performance measurement :

- Identifying organizational strengths and areas for improvement.
- Creating a longterm strategic plan for promoting quality management.
- Integrating the performance measurements into the organizations business planning activities.

Performance Measurement Styles

■ Performance measurement style :

- There is no unique style due to the diversity of management strategies.
- One organization often employ multiple measurement styles to promote quality efforts. [Shin [1998]]

■ Three distinctive styles of performance measurements :

- (1) Quality award style,
- (2) Quality system audit style, and
- (3) Quality metrics style.

Quality Performance Measurements Styles of Key Organizations

Organizations	Quality Award	Quality Audit	Quality Metrics	Nation
S. Electronics		●	◎	Korea
H. Corporation	○	◎	●	Korea
Masushita Electric		●	◎	Japan
Kansai Electric Power		●	◎	Japan
Philips Electronic	●	○		Netherland
OTIS	●	○		Germany
AT&T		○	◎	USA
Federal Express			●	USA
Ames Co.			●	USA

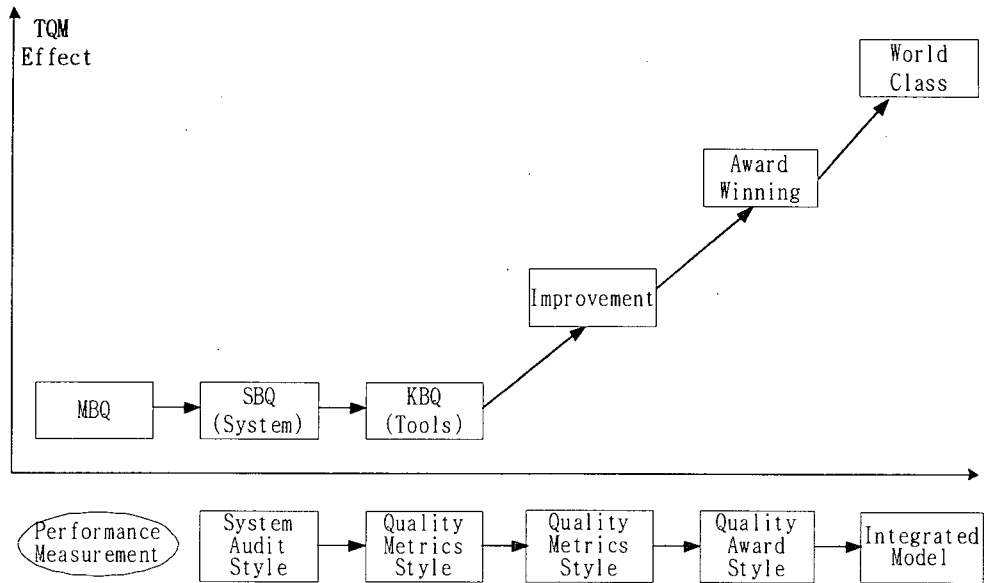
● Primary Measurement ◎ Secondary Measurement ○ Supporting Measurement

Performance Measurement Model

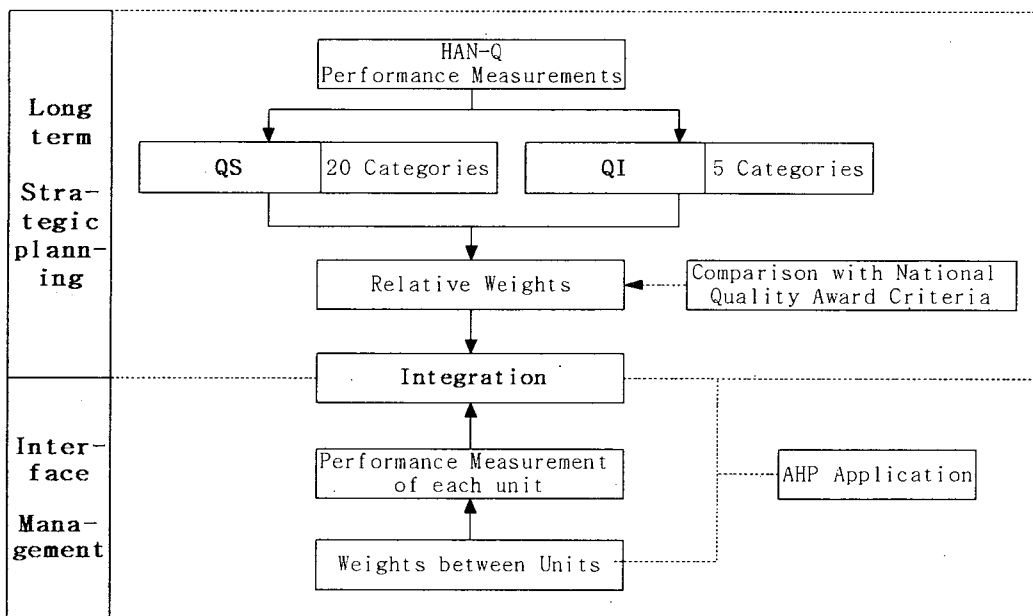
■ Developing A Performance Measurement Model:

- It is important to develop performance measurement models that are appropriate to the organizational maturity in applying TQM.
- An integration of multiple performance measurements styles is desirable to pursue the organizational goals and objectives in a longterm basis.

TQM Maturity and Performance Measurement



Hierarchically Associated Performance Measurement Model



Relationship between QS Categories and National Quality Award Criteria

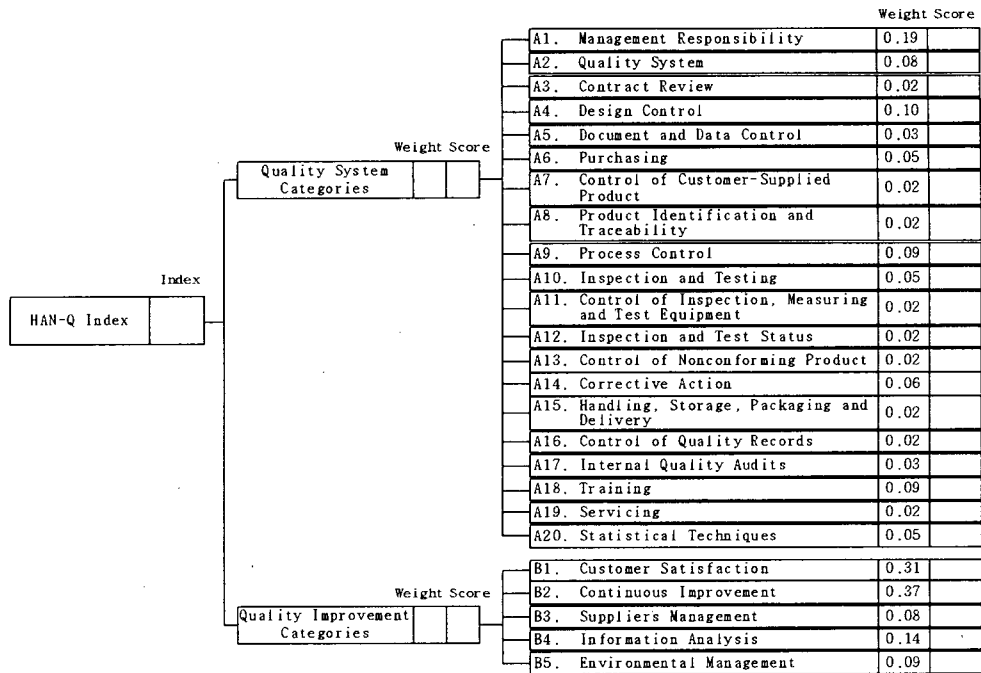
Quality System Categories	National Quality Award Criteria				Points	Weight
	KQA	DEMING	MBNQA	EQA		
A1. Management Responsibility	80	140	75	148	443	19%
A2. Quality System	20	70	66	16	166	8%
A3. Contract Review					0	2%
A4. Design Control	150	20	35		205	10%
A5. Document and Data Control	20		10		30	3%
A6. Purchasing	20	10	20	23	73	5%
A7. Control of Customer-Supplied Product					0	2%
A8. Product Identification and Traceability					0	2%
A9. Process Control	30	40	20	78	168	9%
A10. Inspection and Testing	20	10	20	28	78	5%
A11. Control of Inspection, Measuring and Test Equipment					0	2%
A12. Inspection and Test Status					0	2%
A13. Control of Nonconforming Product					0	2%
A14. Corrective Action	30	40	40		110	6%
A15. Handling, Storage, Packaging and Delivery					0	2%
A16. Control of Quality Records		10			10	2%
A17. Internal Quality Audits		30			30	3%
A18. Training	50	40	65	18	173	9%
A19. Servicing					0	2%
A20. Statistical Techniques		60	20		80	5%
Total	420	470	365	311	1566	100%

※ Basic Weight : 2%

Relationship between QI Categories and National Quality Award Criteria

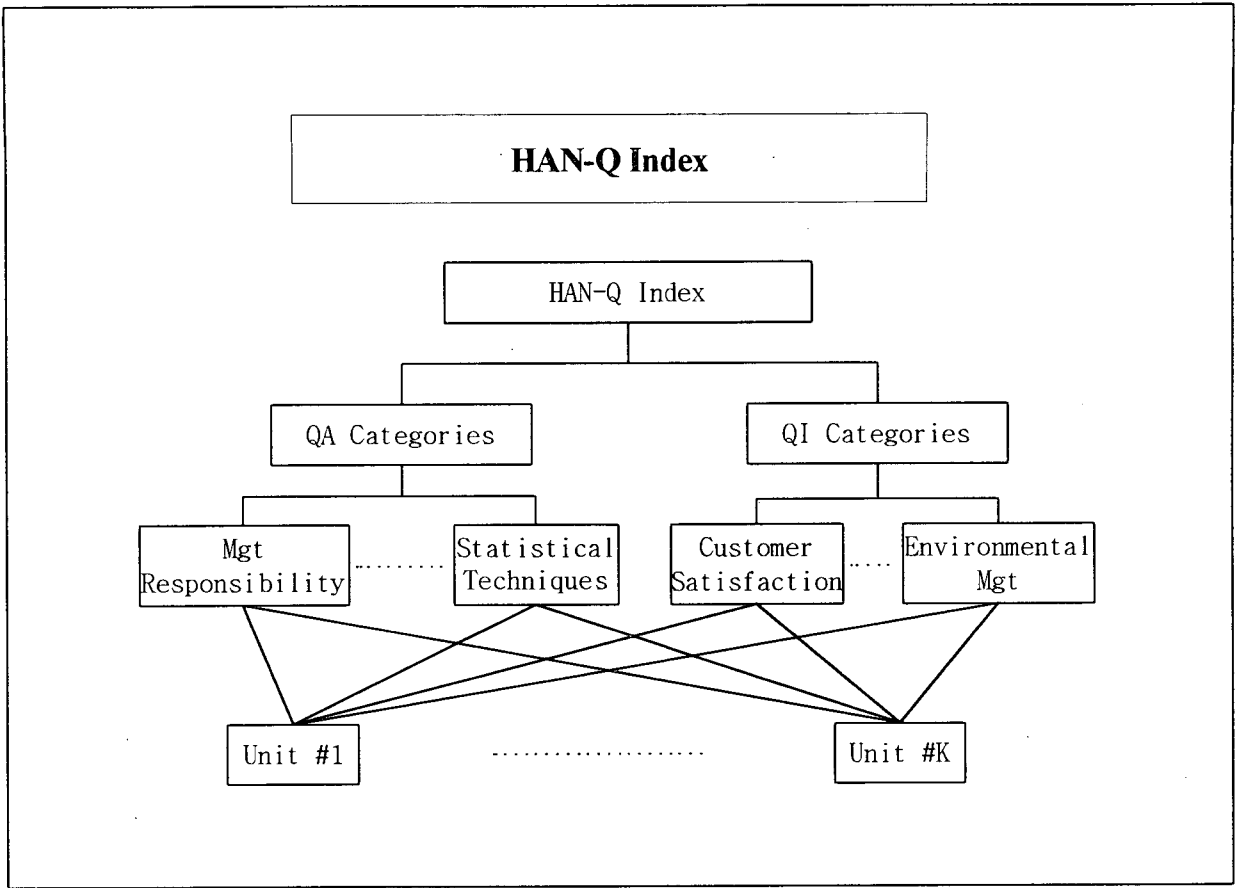
Quality Improvement Categories	National Quality Award Criteria				Points	Weight
	KQA	DEMING	MBNQA	EQA		
B1. Customer Satisfaction	200	0	250	200	650	31%
B2. Continuous Improvement	220	120	250	186	776	37%
B3. Suppliers Management	60	30	60	15	165	8%
B4. Information Analysis	60	100	75	56	291	14%
B5. Environmental Management	40	50	45	60	195	9%
Total	580	300	680	517	2077	100%

Integration of Evaluation Categories Based on Relative Weights



Performance Measurements for Interface Management

- Systematic management of the performance measurement is necessary to benefit from the evaluation process :
 - One designated department is responsible for incorporating the PM results in a unified way.
 - Information collected through the performance measurement is a key input to the Business Plan.
 - Strengths and Areas for Improvement identified are used as inputs into the review and revision of the organization's Policy and Strategy: its values, vision, and goals and objectives.
 - The organization's key strategies and objectives, as defined in the Business plan, are the basis for prioritizing the list of improvements and they must be shared with various units.
 - The functional units need to know their roles and responsibilities in promoting quality for the organization.



An Illustrative Example

		Mgt	QM	Unit A	Unit B	Unit C	Unit D	Unit E
A	QS Points	97	77	80	73	78	89	80
B	QS Contribution	0.15981	0.28872	0.12479	0.17440	0.10074	0.04611	0.10209
C	Weight of QS	0.66667						
D	QI Points	90	88	91	87	88	88	87
E	OI Contribution	0.16825	0.30925	0.24863	0.11755	0.07940	0.05554	0.09210
F	Weight of QI	0.33333						
G	HAN-Q index	15	23	14	12	8	4	8
H	Expected Contribution	17	30	16	15	9	5	10
I	Level of Achievement	88%	77%	88%	80%	89%	80%	80%
G	Rank of Contribution	2	7	2	4	1	4	4

Performance Measurement Application Process

- 1 Getting the commitment of the top management.
- 2 Determining the style of performance measurements and organizational involvement in the process : (Relative Weights, Evaluation Process, etc)
- 3 Training key staff members as assessors : a team approach.
- 4 Applying the measurements based on a systematic approach.
- 5 The site visit as necessary.
- 6 Preparing for the feedback report and follow-up actions.

Concluding Remarks

- The Hierarchically Associated Performance Measurement Model is proposed for leading practitioners of Performance Measurements.
- Appropriate Performance Measurement Models are increasingly considered as an extremely important factor in the improvement of Business Results and the achievement of competitive advantage.
- For the organizations that promote quality management based on the existing quality system, the proposed model can be employed for a longterm planning tool.
- It is helpful for effective interface management among various units in terms of quality.