

지속적인 개선을 위한 TL 9000 품질경영 시스템 성과지표 : R 2.5 와 R 3.0

(TL 9000 Quality Management System Measurements for
Continual Improvement : Release 2.5 와 Release 3.0)

최성운*

요 지

본 연구는 TL 9000 성과지표 : R 2.5 및 이를 QUEST FORUM Web Site에서 등록하기 위한 절차 및 Data Flow를 소개한다.

끝으로 TL 9000 성과지표 : R 3.0 및 Product Category 중 R 2.5에서 개정된 주요부분을 소개하며 향후 성과지표 개발 가이드라인에 대해 언급한다.

1. 서 론

1.1 Requirements for Measurements Usage

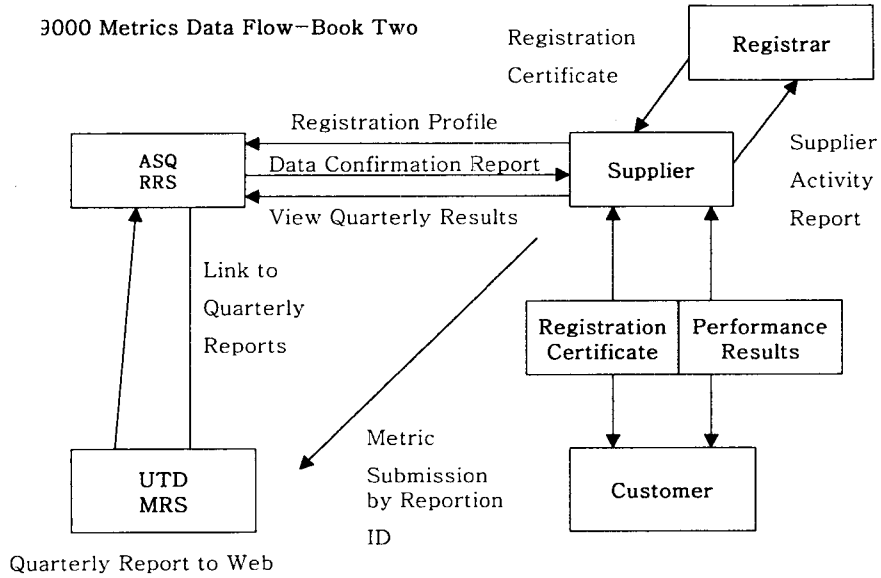
- Internally as a part of their continual improvement programs and management reports.
- As appropriate, in customer-organization exchanges and continual improvement programs, and
- When reporting to the Measurements Administrator, where indicated.

1.2 Principles of Measurements Usage

- Provide industry performance in information suitable for benchmarking,
- Improve telecommunications processes and products,
- Identify improvement opportunities, and
- Standardize customer report cards or assessments.

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1.3 High Level TL 9000 Data Flow



1.4 Data Flow

#	Data Flow Deliverables/ Objects	Registration Process
		AB
17	Annual Report	
2	ASQ-UTD Communications package(AUCP)	
12	Clarifications	
10		Company ID
1	Data Confirmation Reprot	Data Confirmation Report
	Data Submission Software Package(DSSP)	Data Submission Software Package
		Forum Administrator
		Metrics Administrator

9 11	Metric Submission	
Box	Metrics Repository System(MRS)	
	MRS Data Submission Form	
	MRS Secure Room	
	MRS User Manuals	
		Password
		Product Category
8	Performance Results	
16	Quarterly Report	
		QUEST Forum Web Site
Box	Registrar	Accredited TL 9000 Registrars
14	Registration Certificates	ISO Certificate with the TL 9000 Notation
6	Registration ID	Registration ID
5	Registration Profile	Registration Profile Form
Box	Registration Repository System(RRS)	
18	Registry	
4.6	Reporting ID	Reporting ID(s)
15	RRS Registered Company Database	Registered Company Database TL 9000 Registered Company Database
		TL 9000 Registrar Applications
	RRS Registrar Database	Accredited TL 9000 Registrars
	RRS User Manuals	
3	Secret ASQ Key	
7	Secret Supplier Key	
13	Summary Database	
	Confirmation Report	
	Training Database	
		User ID

1.5 QUEST Forum Web Site 등록

- 1) RSS 모기업 등록
- 2) ID와 Password 등록
- 3) DSSP 프로그램 설치
- 4) Measurements Data 전송

2. TL 9000 성과 지표 : R 2.5

2.1 Metrics Summary Sheet

지속적인 개선을 위한 TL 9000 품질경영 시스템 성과지표 : R 2.5 와 R 3.0 최성운

Classification	Metric	Brief Description
C	Number of Problem Reports(NPR)	Total problems by severity level per unit per month
C	Problem Report Fix Response Time(FRT)	Time it takes to resolve problem
C	Overdue Fix Responsiveness(OFR)	Rate of closure of overdue problems
C	System Outage(SO)	Total number of outages and duration of outage
C	On-Time Delivery (OTD)	Timeliness of order receipts
H	First Year Return Rate(FYR)	Return rate during first year of operation
H	Long Term Return Rates(LTR)	Return rate after first year of operation
S	Corrective Patch Quality(CPQ)	% corrective problems with defects
S	Feature Patch Quality(FPQ)	% feature patches with defects
S	Software Update Quality(SWU)	% SW updates with defects
S	Release Application Aborts(RAA)	% release applications with aborts
V	Service Quality(SQ)	Conformance of service to specified criteria

3. TL 9000 성과지표 : R 3.0

3.1 Measurements

Measurements Listing	Title	Handbook Section
	Common Measurements (C)	5
	Number of Problem Reports (NPR)	5.1
	Problem Report Fix Response Time(FRT)	5.2
	Overdue Problem Report Fix Responsiveness Measurements (OFR)	5.3
	On-Time Delivery(OTD)	5.4
	Hardware and Software Measurements(HS)	6
	System Outage Measurement(SO)	6.1
	Hardware Measurements(H)	7
	Return Rates(RR)	7.1
	Software Measurements(s)	8
	Software Installation and Maintenance	8.1
	Release Application Aborts(RAA)	8.1.5
	Corrective Patch Quality (CPQ)and Feature Patch Quality(FPQ)	8.1.6
	Software Update Quality(SWU)	8.1.7
	Services Measurements(V)	9
	Service Quality(SQ)	9.1

3.2 SWIM (Software Installation and Maintenance)

Insertion of New Release	Maintenance	
	Patching	S/W Update
S/W Release Application	Option 1	
S/W Update		Option 2
S/W Update	Option 3	

3.3 Product Category

Category Code	Category :	Category Code	Category :
1	Switching	1.2.2	IP Packet Switch/Router
1.1	Circuit Switch	1.2.3	Asynchronous Transfer Mode(ATM) Switch
1.2	Packet Switch	1.2.3	Frame Relay Switch
1.2.1	Public Packet Switched Network(PPSN)		

Category Code	Category :	Category Code	Category :
2	Signaling	2.2	Signaling Transfer Point(STP)
2.1	Service Control Point(SCP)	2.3	Home Location Register(HLR)

Category Code	Category :	Category Code	Category :
3	Transmission	3.2	Transport Equipment
3.1	Outside Plant	3.2.1	Cross Connect Systems
3.1.1	Transmission Metallic	3.2.1.1	Manual Cross Connect Systems
3.1.1.1	Metallic Products	3.2.1.2	Digital Cross Connect Systems
3.1.1.1.1	Metallic Conductor Cable	3.2.2	Carrier Systems/Multiplexers
3.1.1.1.2	Metallic Connectors	3.2.2.1	Interoffice / Long Haul
3.1.1.2	Optical Fiber Products	3.2.2.1.1	Metallic Carrier System
3.1.1.2.1	Optical Fiber and Cable	3.2.2.1.2	Optical Carrier System
3.1.1.2.2	Optical connectors	3.2.2.1.2.1	SONET / SDH Transport Systems
3.1.1.3	Transmission Sub-systems	3.2.2.1.2.2	WDM / DWDM / Optical Amplification Products
3.1.1.3.1	Active Sub-systems	3.2.2.1.3	Microwave
3.1.1.3.2	Passive Optical Sub-systems	3.2.2.2	Loop Carrier
3.1.1.3.3	Ancillary Sub-Systems	3.2.3	Line Termination Equipment / Distribution Frames
3.1.2	Physical Structure	3.2.4	Digital Subscriber Line (DSL)
3.1.2.1	Enclosures	3.3	Wireless Transmission
3.1.2.2	Support structures	3.3.1	Base Station Equipment
3.1.2.3	conduits	3.3.2	Base Transceiver System(BTS)
		3.3.3	Pilot Beacon Unit (PBU)

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Category Code	Category :	Category Code	Category :
4	Operations & Maintenance	4.2	Operations Support Systems
4.1	Test Systems	4.2.1	On Line Critical
4.1.1	Test Access Equipment	4.2.2	On Line Non-critical
4.1.2	Test Equipment, Embedded	4.2.3	Off Line
4.1.3	Test Support Software	4.3	Ancillary Operations and Maintenance Products

Category Code	Category :	Category Code	Category :
5	Common systems	5.2	General Purpose Computers
5.1	Synchronization	5.3	Power Systems

Category Code	Category :	Category Code	Category :
6	Customer Premises Enhanced Services Platforms	6.2.1.1	Wireline Telephone sets
6.1	Enhanced Services Platforms	6.2.1.2	Wieress Subscriber User Terminals
6.1.1	Interactive Voice Response(IVR) Platforms	6.2.2	Fax Equipment
6.1.2	Messaging Platforms	6.2.3	Data Modems
6.1.3	Multi-Application Platforms	6.2.4	Digital Data Service Units
6.2	Terminal Equipment	6.3	Automatic Call Distribution(ACD) Systems
6.2.1	Voice Terminals	6.4	Private Branch Exchange(PBX)
		6.5	Small Communications System(Key Telephone System)

Category Code	Category :	Category Code	Category :
7	Services	7.5	Customer Support Service
7.1	Installation Service	7.6	Procurement Services
7.2	Engineering Service	7.7	Logistical Services
7.3	Maintenance Service	7.8	
7.4	Repair Service	7.9	General Support Service

Category Code	Category :	Category Code	Category :
8	Components and Subassemblies	8.2.1	Simple
8.1	Components	8.2.2	Medium Complexity
8.2	Subassemblies	8.2.3	High Complexity
		8.2.4	Very High Complexity

3.4 Measurement Summary Listing

Measurement Symbol	Submeasurement Symbol	Applicability(H/S/V)	Reported Items(Table)	Compared or Research Data
NPR		H,S,V	5.1-3	
	NPR1	H,S		compared
	NPR2	H,S		compared
	NPR3	H,S		compared
	NPR4	V		compared
IPR		H,S	5.1-4	
	IPR1	H,		compared
	IPR2	H,		compared
	IPR3	H,		compared
FRT		H,S,V	5.2-3	
	FRT2	H,S		compared
	FRT3	H,S		compared
	FRT4	V		compared
ORT		HS	5.2-4	
	ORT2	H,S		compared
	ORT3	H,S		compared
OFR		H,S,V	5.3-3	
	OFR2	H,S		research
	OFR3	H,S		research
	OFR4	V		research
OPR		H,S	5.3-4	
	OPR2	H,S		research
	OPR3	H,S		research

Measurement Symbol	Submeasurement Symbol	Applicability(H/S/V)	Reported Items(Table)	Compared or Research Data
OTD		H,S,V	5.4-2	
	OTIS	H,S,V		compared
	OTI	H,S		compared
	OTS	V		compared
SO		H,S	6.1-4	
	SO1	H,S		compared
	SO2	H,S		compared
	SO3	H,S		compared
	SO4	H,S		compared
SOE		H,S	6.1-5	
	rDPMs	H,S		compared
	rDPMs	H,S		compared
	rDPMs	H,S		compared
	rDPMs	H,S		compared
	rOFMs	H,S		compared
	rOFMs	H,S		compared
	rOFMs	H,S		compared
	rOFMs	H,S		compared

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Measurement Symbol	Submeasurement Symbol	Applicability (H/S/V)	Reported Items (Table)	Compared or Research Data
SOG	hOFMc	H,S	6.1-6	compared
	DPM	H,S		compared
	DPMs	H,S		compared
	OFM	H,S		compared
	OFMs	H,S		compared
RR		H	7.1-2	
	IRR	H		research
	YRR	H		research
	LTR	H		research
RAA		H	8.1.5-3	compared
	RAA0	S		compared
	RAA1	S		compared
	RAA2	S		compared
RAQ		S	8.1.5-4	compared
	RAQ0	S		compared
	RAQ1	S		compared
	RAQ2	S		compared
	Rar1	S		compared
	Rar2	S	compared	

Measurement Symbol	Submeasurement Symbol	Applicability (H/S/V)	Reported Items (Table)	Compared or Research Data
CPQ		S	8.1.6-3	
	CPQ0	S		compared
	CPQ1	S		compared
	CPQ2	S		compared
DCP		S	8.1.6-4	
	DCP0	S		compared
	DCP1	S		compared
	DCP2	S		compared
	CPr0	S		compared
	CPr1	S		compared
	CPr2	S		compared
FPQ		S	8.1.6-3	
	FPQ0	S		research
	FPQ1	S		research
	FPQ2	S		research
DFP		S	8.1.6-4	
	DFP0	S		research
	DFP1	S		research
	DFP2	S		research
	FPr0	S		research
	FPr1	S		research
	FPr2	S		research
SWU		S	8.1.7-3	
	SWU0	S		compared
	SWU1	S		compared
	SWU2	S		compared
DSU		S	8.1.7-4	
	DSU0	S		compared
	DSU1	S		compared
	DSU2	S		compared
SQ		V	9.1-3	
	SQ1	V		research
	SQ2	V		compared
	SQ3	V		compared
	SQ4	V		compared
	SQ5	V		research

3.5 Annualization Factor

Annualization Factor (Afactor)	This factor is applied to annualize the return rate. It is the number of reporting periods in one year.	
	Report Period Type	Afactor
	Calendar Month	12
	4 Week Fiscal Month	13
	5 Week Fiscal Month	10.4
	6 Week Fiscal Month	8.7
	28 Day Month	13.04
	29 Day Month	12.59
	30 Day Month	12.17
	31 Day Month	11.77

3.6 Reference

GR-929-CORE : RQMS(Reliability and Quality Measurements for Telecommunications Systems)

GR-230-CORE

GR-323-CORE

ISO 8402 : 1994

TR-NWT-000284

TL 9000

ISO9000 : 2000

4. Measurement Guidelines

4.1 TL 9000 Customer Satisfaction Measurements Guidelines

Quality of Delivery

- Delivers on time
- Meets due date without constant follow-up
- Lead time competitiveness
- Delivers proper items
- Delivers proper quantities
- Accurate documentation and identification
- Handles emergency deliveries

Quality of Pricing

- Competitive pricing
- Price stability
- Price accuracy
- Advance notice on price changes

Quality of Customer Service

- Compliance to contract terms
- Supplier organization representatives have sincere desire to serve
- Provides feedback from factory
- Recognizes cost effectiveness
- Market insight
- Training provided on equipment/products
- Support on professional and technical matters
- Invoicing efficiency
- Issuing credit notes
- Order acknowledgement
- Adherence to company policy

Quality of Product

- Product reliability/durability/meets specifications
- Product documentation, instructions, technology
- Product packaging, suitability, environmental aspects
- Contract service quality

4.2 GQM

Goal - Question - Metric

5. 결 론

- 1) QUEST FORUM Web Site Data Flow 및 등록절차
- 2) TL 9000 성과지표 : R 2.5
- 3) TL 9000 성과지표 : R 3.0 와 Product Category
- 4) 성과지표 가이드라인과 GQM

[참고문헌]

1. QUEST FORUM, TL 9000 Quality System Metrics, Book Two, Release 2.5, 1999.
2. QUEST FORUM, TL 9000 Quality Management System Measurements Handbook, Release 3.0, 2001.
3. [http : // www.questforum. org/](http://www.questforum.org/).