Out of Crisis Models : An Application of Total Quality Management (TQM)

by

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Out of Crisis Models : An Application of TQM

Key Words : TQM Process, Out of Crisis Strategic Management, Zero Defect Goal, Six Sigma Methodology, Economic Robustness, Maturity Models and Certification Institutes.

Abstract :There was a financial crisis in Thailand in 1997. All businesses including government and private sectors were in big trouble. Many companies were out of business. Two experts from the IMF organization were assigned to help solving short term problems. A question was asked, how can we prevent the nation form this type of crisis in the future ? There was no answer from the experts. Because they were financial planning persons, not strategists nor management experts.

Dr. W. Edwards Deming has been known as the father of the Japanese post-war industry revival and was regarded by many as the leading quality guru from The United States. The Statistical Process Control was used and transformed into TQM levels implemented to increase industrial standards to assure process maturity. There have been maturity certifications developed as American Standards or an International Standard Organization (ISO) standards in Europe Community.

The TQM concepts can be applied to build crisis management processes to protect world economy crisis in the future. These processes are long term strategic investment for all nations to improve maturity levels. This paper suggests to building certification processes for organizations to move up to prevent future economic crisis.

A Brief Biography

Dr. Dusit Charern

Education :

- 1966, B.Ed.(Mathematics), Prasarnmit, Bangkok, Thailand
- 1972, M.S. (Statistics), NIDA, Bangkok, Thailand
- 1978, Ph.D.(Statistics), The University of Georgia, Athens, Georgia, USA

Experience :

- 1966-1972, Statistician, Ratburi, Thailand

"supervising all field works for census and survey projects for Thai National Statistical Office".

- 1972-1979, Instructor, School of Applied Statistics, NIDA

"studied and finished Ph. D. degree and taught at NIDA".

- 1979-1980, Computer Analyst, Westinghouse, Athens, Georgia, USA

"Developed all software products using IBM systems".

- 1981-1990, System Analyst, Computer Science Corporation, USA

"Weapon System Simulation applications and Statistical Modeling".

- 1990-2002, Founder and CEO, Quality Research, Huntsville, Alabama, USA

"Twelve years of success business starting from $2000. In 2002, the revenue was $63.3 M. The company ranked # 52 Fastest Private businesses USA in 1996,#236 in 1997 and #447 in 1999. The first six years, the average growth was 151% per year. The second six years, the average growth was 35% per year. In the last six years, we allowed success employees to buy 70% stocks at 48 cents and sold at $14 with increasing value of 29.2 times. For me, I owned only 30% and the value increased (0.30×29.2) or 9 times. We used LOVE, CARE, PEACE, HAPPINESS and SUCCESS for our daily lives and our business. Love is the only mean to build heavens on earth".

Total Quality Management (TQM)
Why TQM ?

"Quality is everyone's responsibility." ~ ***Edward Deming***

TQM refers to an integrated approach by management to focus all functions and levels of an organization on quality and **continuous improvement**. Over the years TQM has become very important for improving a firm's process capabilities in order to achieve fit and sustain competitive advantages. TQM focuses on encouraging a continuous flow of incremental improvements from the bottom of the organization's hierarchy. TQM is not a complete solution formula as viewed by many – formulas can not solve managerial problems, but a lasting commitment to the process of continuous improvement.

TQM Requires Cultural Transformation

With TQM, quality is not the product but the process. To institute the process, corporate trainers must bring about a **cultural** transformation wherein all employees shed their individualism for a unified set of **corporate values**.

TQM was the brainchild of **Dr. W. Edward Deming**. TQM helped **Japan** with its postwar economic recovery. That was because it meshed with Japanese culture

Who is Dr. W. Edwards Deming ?

Dr. W. Edwards Deming
1900 - 1993

"We have learned to live in a world of mistakes and defective products as if they were necessary to life. It is time to adopt a new philosophy in America."

Dr. W. Edwards Deming is known as the father of the Japanese post-war industrial revival and was regarded by many as the leading quality guru in the United States. He passed on in 1993.

Trained as a statistician, his expertise was used during World War II to assist the United States in its effort to improve the quality of war materials.

He was invited to Japan at the end of World War II by Japanese industrial leaders and engineers. They asked Dr. Deming how long it would take to shift the perception of the world from the existing paradigm that Japan produced cheap, shoddy imitations to one of producing innovative quality products.

Deming Prize Medal

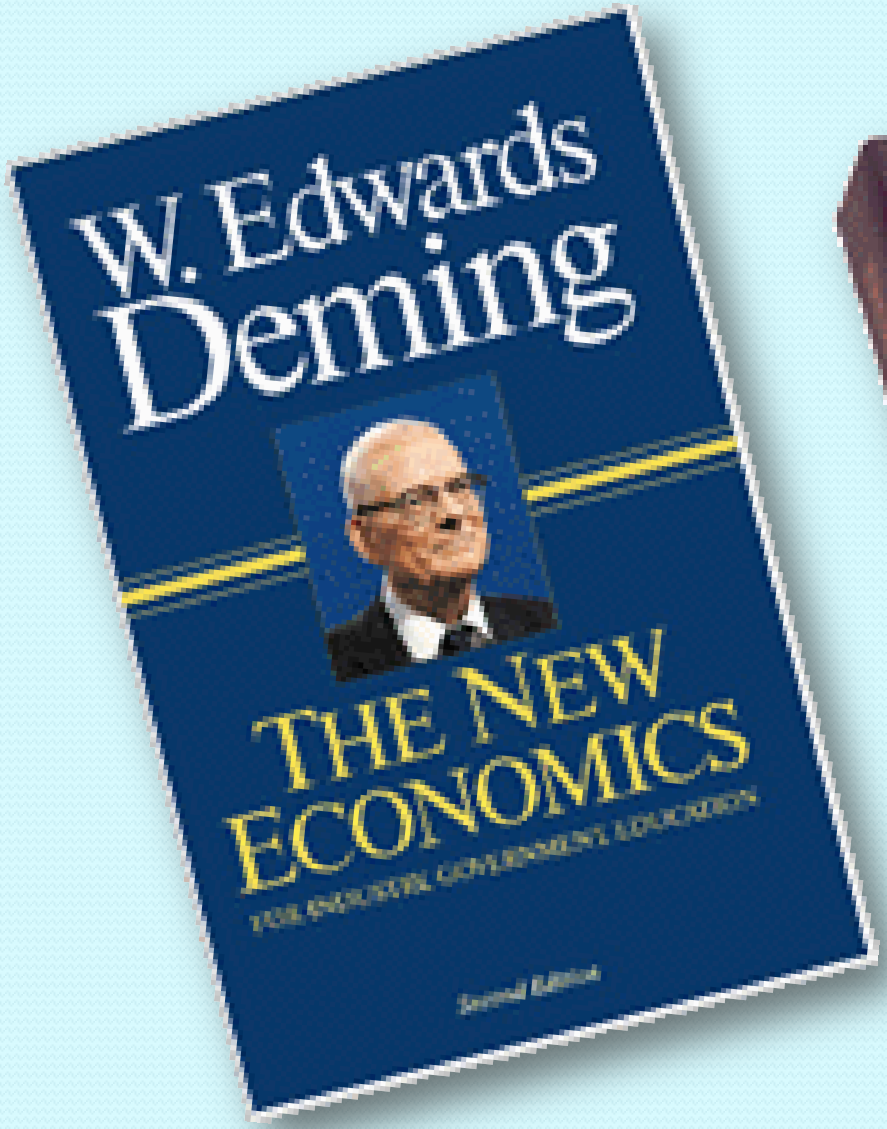
Dr. Deming told the group that if they would follow his directions, they could achieve the desired outcome in five years. Few of the leaders believed him. But they were ashamed to say so and would be embarrassed if they failed to follow his suggestions.

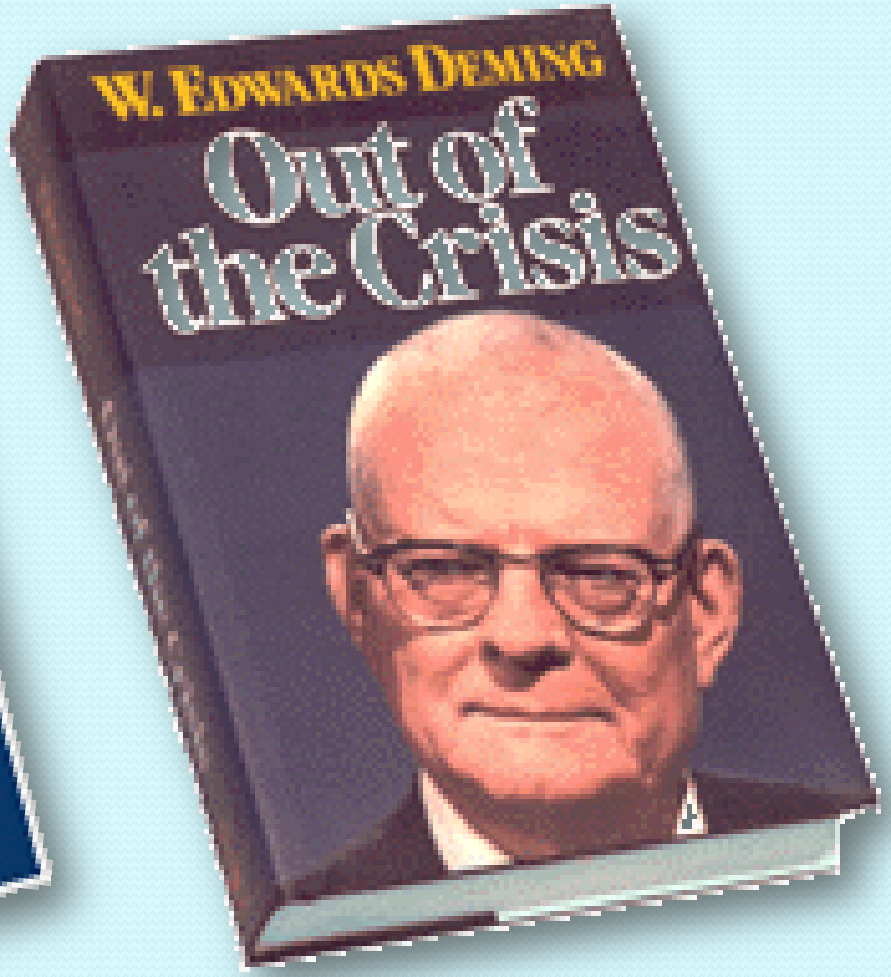
As Dr. Deming told it, ***"They surprised me and did it in four years."***

He was invited back to Japan time after time where he became a revered counselor. For his efforts he was awarded the Second Order of the Sacred Treasure by the former Emperor Hirohito.

Japanese scientists and engineers named the famed Deming Prize after him.

Dr. Deming's books





Deming's 14 Points

1. Create **constancy of purpose** and continual improvement – long term planning must replace short term reaction
2. Adopt the new (Japanese) philosophy – by management and workers alike.
3. Do not depend on (quality) inspection – **build quality into the product** and process.
4. Choose quality suppliers over low cost suppliers – to minimize variation in raw materials and supply.
5. **Improve constantly** – to reduce variation in all aspects e.g. planning, production, and service.
6. Training on the job – for workers and management, to reduce variation in how job is done.
7. **Leadership not supervision** – to get people to do a better job, not just meet targets.
8. Eliminate fear – encourage two-way communication, encourage employees to work in the organization's interest.
9. Break down internal barriers – departments in an organization are "**internal customers**" to each other and must work together.
10. Eliminate slogans (exhortations) – processes make mistakes not people. Management harassment of workers will create bad relations if no effort made to improve processes.
11. **Eliminate numerical targets** – management by objectives (targets) encourages low quality.
12. Remover barriers to worker satisfaction – including annual appraisals.
13. **Encourage self improvement** and education for all
14. Everyone is responsible for continual improvement in quality and productivity – particularly top management.

The Toyota Way

I. Having a long-term philosophy that drives a long-term approach to building a learning organization

1. Base your management decisions on a long-term philosophy, even at the expense of short-term financial goals.

II. The right process will produce the right results

2. Create a continuous process flow to bring problems to the surface.
3. Use "pull" systems to avoid overproduction.
4. Level out the workload . (*Work like the tortoise, not the hare*)
5. Build a culture of stopping to fix problems, to get quality right the first time.
6. Standardized tasks and processes are the foundation for continuous improvement and employee empowerment.
7. Use visual control so no problems are hidden.
8. Use only reliable, thoroughly tested technology that serves your people and processes.

III. Add value to the organization by developing its people and partners

9. Grow leaders who thoroughly understand the work, live the philosophy , and teach it to others.
10. Develop exceptional people and teams who follow your company's philosophy.
11. Respect your extended network of partners and suppliers by challenging them and helping them improve.

IV. Continuously solving root problems to drive organizational learning

12. Go and see for yourself to thoroughly understand the situation .
13. Make decisions slowly by consensus, thoroughly considering all options; implement decisions rapidly .
14. Become a learning organization through relentless reflection and continuous improvement .

A Capability Maturity Model (CMM)

The **CMM** is a service mark registered with the U.S. Patent and Trademark Office by Carnegie Mellon University (CMU) and refers to a development model that was created after study of data collected from organizations that contracted with the U.S. Department of Defense, who funded the research. This became the foundation from which CMU created the Software Engineering Institute (SEI). Like any model, it is an abstraction of an existing system.

Though the CMM comes from the field of software development, it is used as a general model to aid in improving organizational business processes in diverse areas; for example in software engineering, system engineering, project management , software maintenance, risk management, system acquisition , information technology , services, business processes and human capital management. The CMM has been used extensively worldwide in government offices, commerce, industry and software development organizations.

Five Maturity Levels

There are five levels defined along the continuum of the CMM and, according to the SEI: "Predictability, effectiveness, and control of an organization's software processes are believed to improve as the organization moves up these five levels. While not rigorous, the empirical evidence to date supports this belief."

1. Initial (chaotic, ad hoc, individual heroics) - the starting point for use of a new or undocumented repeat process.
2. Repeatable - the process is at least documented sufficiently such that repeating the same steps may be attempted.
3. Defined - the process is defined/confirmed as a standard business process, and decomposed to levels 0, 1 and 2 (the latter being Work Instructions).
4. Managed - the process is quantitatively managed in accordance with agreed-upon metrics.
5. Optimizing - process management includes deliberate process optimization/improvement.

Key Process Areas (KPAs)

Within each of these maturity levels are KPAs which characterize that level, and for each KPA there are five definitions identified:

1. Goals
2. Commitment
3. Ability
4. Measurement
5. Verification

The CMM was originally intended as a tool to evaluate the ability of government contractors to perform a contracted software project. It has been used for and may be suited to that purpose.

Level Description

Level 1 - *Initial (Chaotic)*

It is characteristic of processes at this level that they are (typically) undocumented and in a state of dynamic change, tending to be driven in an *ad hoc*, uncontrolled and reactive manner by users or events. This provides a chaotic or unstable environment for the processes.

Level 2 - *Repeatable*

It is characteristic of processes at this level that some processes are repeatable, possibly with consistent results. Process discipline is unlikely to be rigorous, but where it exists it may help to ensure that existing processes are maintained during times of stress.

Level 3 - *Defined*

It is characteristic of processes at this level that there are sets of defined and documented standard processes established and subject to some degree of improvement over time. These standard processes are in place and used to establish consistency of process performance across the organization.

Level 4 - *Managed*

It is characteristic of processes at this level that, using process metrics, management can effectively control the process for software development . In particular, management can identify ways to adjust and adapt the process to particular projects without measurable losses of quality or deviations from specifications. Process Capability is established from this level.

Level 5 - *Optimizing*

It is a characteristic of processes at this level that the focus is on continually improving process performance through both incremental and innovative technological changes/improvements.

SEI Improvement Statistics

Dr. Everette Rogers, Study early 1960's

Publish 1962 "Diffusion of Innovation"

Capability Maturity Model is a successful Technology Innovation

Its commercial use of 1158 firms or 68.8%

	Productivity	Schedule	Defects
	Improvement	Improvement	Improvement
Level 3	+ 25%	- 20%	37% Reduction
Level 4	+ 50%	-30%	70% Reduction

Note : This SEI certification reduced US billion lines of code and billion dollars of maintenance budgets.

How to build “Out of Crisis” Applications ?

- Process to identify Causes of crisis
- Process planning with TQM
- Process implementation
- Process improving and control for the future

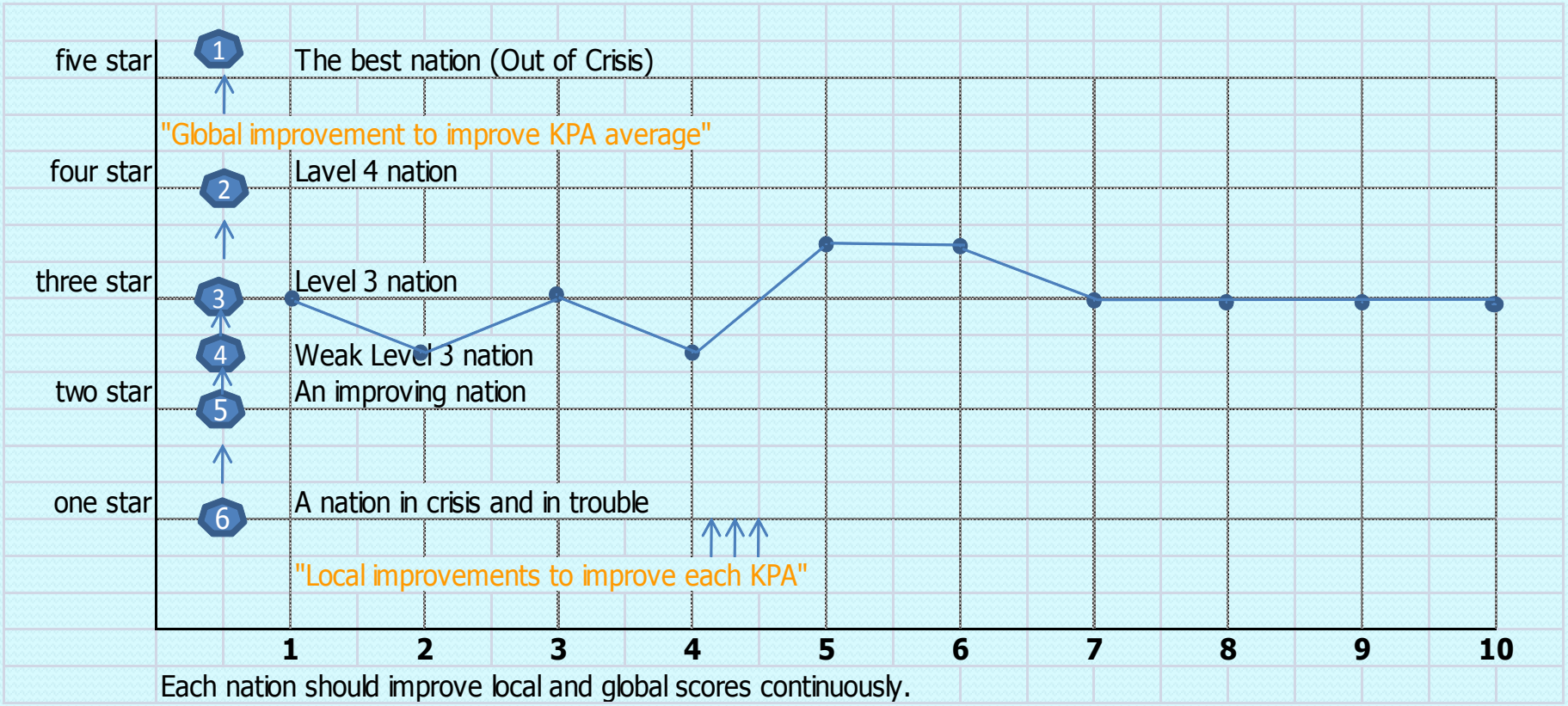
How to plan to be out of economy crisis ?

Define Global KPAs for Level Advancement :

1) Political Maturity
2) Financial Maturity
3) Civil Service Quality
4) Growth Potentials for Private Business & Industry
5) Best Investment Culture
6) Free and Fair Competition Environment
7) Income Distribution to Local Villages
8) Low Operation Cost
9) Best Business Leaders and Labor Quality
10) Team Work Quality

Note :These are start up KPAs. These can be changed.

Out of crisis examples



Where are we ?
What are left to be done ?

The last three pages have been a start up ideas to create **“Global KPAs”** which can be changed to what the nation wants. For each Global KPA, experts must define local KPAs with goals, commitment, ability, measurement and verification. After all KPAs implemented and certified we hope that the processes will be improved continuously. In reality, processes may be demoted to lower levels. All organizations and involved people must work hard to make the nation **“out of crisis”.**

Certification Institutes :

- All over the world, standards have been built and used for all organizations.
- There may be experts to come up with subjective weights for local KPAs to calculate global composite score.
- Multivariate Analysis tools such as multiple regression, factor analysis, principle component analysis and discriminant analysis can be used to calculate local KPAs weights.
- There may be many levels of local KPAs implemented for a complicated system.

Conclusion :

My paper has suggested only from my personal ideas to build a world class out of crisis system utilizing an application of TQM which will prevent, protect each nation from future crisis. Not only that it will make our nations compete successfully in a new fenceless world. I hope that it will improve all local and global KPAs to provide complete TQM out of crisis processes.

Bonus : My life two lessons :

1) George Washington Statistical Control Stated in 1789 .

“Let us raise a standard, to which a wise and honest can repair, the rest will be in the hands of God”.

This implies the first phase of people process improvement requirements. Next would be requirements for leaders and decision makers **to be wise and honest**. Last would be religion freedom.

2) Miss Martina Mc Bride’s song for building best teams **“ Love is the only house that is big enough for all pain in the world”.**

The best team started form **love** and ended with **love** and the only **love**.

Bonus : Dusty's business model

I suggested a culture of

1) Love care, peace, happiness and successes
2) People empowerment
3) Fairness, discipline and consistency
4) Best recruitment, best training and retain them all in our organizations
5) We are the wind beneath to each other wings
6) Listen, learn and decide together from bottom up
7) Be parts of solution and all of us love to solve problems
8) Be the best world lovely citizens, the rest will flow
9) Build the tireless team that never die
10) Best advancement with a fair rewarding system will create a win-win process
11) United we stand, Unity we grow indefinitely

Bonus : Business Growth Ingredients

1) Allow employee to own stock grows 29 times
2) Invest on new tools grow 25%
3) Build TQM process grow 30%
4) Recruit best people grow 35%
5) Build a unified team grow 25%
6) Franchise business grows fast
7) Business acquisition

Thanks from my heart

and

Good bye

My e-mail : dusty@ardmore.net