

The Ideas of Dr. W. E. Deming and their Fate

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Abstract

The life of William Edwards Deming (WED) who was born in 1900 and died in 1993 covers almost a whole century – the 20th century. He created a new look at how to build human relationships during production process (Deming, 1986, 1993). He found out how production data should be got and used. He realized the specific role of quality for continual improvement. He upgraded the W. Shewhart's cycle of specification-production-inspection (Steward, 1986, p. 45) and turned it into the cycle of learning and improvement of whatever whoever wanted to improve (PDSA cycle). As a result he created a new theory of management. In fact he created the theory of future management – management of the 21st century. He had many disciples and supporters all over the world. His major achievement is the so-called "Japan's Economic Miracle". But though there is an institute of his name in the New York, USA, and there are many supporters of his ideas in different countries, and though his name is even included into the list of the most influential management gurus of the 20th century (Kennedy, 1998; Gabor, 2000), the success of his ideas turned out to be much less than it should be according to the expectations. Moreover there are strong grounds to believe that an apex of success of WED's ideas was at the end of the 20th century and that his 21st century management turned out to be unrequired just when its time has already come. That's why it raises many questions:

- Why WED's ideas are not popular in the 21st century;
- Whether the time comes when WED's ideas will affect the real business;
- What changes of WED's ideas are necessary for today's reality (if are);
- What must happen in order to require the radical refinement of WED's teaching.

All these questions are the subject of our discussion in this paper.

***"Deming was a kind of American Protestant Don Quixote,
who broke his wooden lance of Quality
on the heavily fortified windmill of Stockholder Value"
K. & W. Hopper (The Puritan Gift, p.242)***

Let's start from the words of William Edwards Deming (WED) himself. In the introduction to M. Walton's book (Walton, 1991) in June 1990 he wrote:

"The economic position of the USA has been on the decline for three decades. The main cause of this decline is the prevailing system management – management by fact, ranking people, plants, teams, divisions, companies, suppliers, with reward and punishment. We have been led astray by faith in adversarial competition.

Management addressed toward optimization of a system would offer improvement. A system must have an aim. Without an aim, there is no system.

A system must be managed. The bigger the system, the more difficult it is to manage it for optimization.

The performance of any component within a system is to be judged in terms of its contribution to the aim of the system, not for its individual production or profit, nor for any other competitive measure.

Optimization of a system should be the basis of negotiation between any two people, between divisions of a company, between customer and supplier, between countries, between competitors. Everybody gains after optimization.

Best efforts and hard work will not suffice, nor new machinery, computers, automation, gadgets. One could well add that we are being ruined by best efforts put forth with the best intentions but without guidance of a theory of management for optimization of a system. There is no substitute for knowledge.

It is a mistake to suppose that if you cannot measure the results of an activity, you cannot manage it. The fact is that the most important losses and gains cannot be measured; yet for survival they must be managed. Examples of gains and losses are grades in school, from toddlers on up through the university; the annual appraisal of people on the job, even of teachers; ranking, with reward and punishment; incentive pay; monetary reward for suggestions; bonuses (to make sure that somebody does his job); quotas for production; gains from training, education; business plans based on competitive measures.

The change required is transformation, change of state, metamorphosis, in industry, education and government. The transformation will restore the individual by abolishment of grades in school on up through university; by abolishment of the annual appraisal of people on the job; M.B.O., quotas for production, incentive pay, competition between people, competition between divisions and other forms of suboptimization. The transformation is not stamping out fires, solving problems, nor cosmetic improvements.

The transformation must be led by top management”.

During his last years WED often wrote similar texts. They express explicitly the main principles of his teaching. But before discussing WED's ideas firstly let's talk a bit about his life. Here we'll give the word to Genichi Taguchi who studied WED's ideas very attentively and for a long time and included a special chapter devoted to WED into his big book (Taguchi, 2005) (text of that chapter was written by Ed Vinarchik):

“William Edwards Deming was born on October 14, 1900, to William Albert Deming and Pluma Irene Edwards in Sioux city, Iowa. Seven years later, his family moved to Wyoming after receiving a land grant. The 40 acres of land given to the Deming family was useless for farming, making life very hard for Edwards and his two siblings. The family's first home was nothing more than a tarpaper shack.

Pluma Irene and William Albert Deming were well educated for the time. Pluma had studied music in San Francisco, and William Albert had studied mathematics and law. Both parents emphasized the importance of education and encouraged their children to focus on their studies. Although Deming was going to school, he began picking up odd jobs to support the family when he was 12.

After graduating from high school in 1917, Deming enrolled in classes at the University of Wyoming in Laramie. Fortunately, the university did not have a tuition fee. Deming studied for four years, graduating with a Bachelor of Science degree in physics. He stayed at the university in Laramie for an additional year, teaching engineering and taking additional classes in mathematics. In 1918 he accepted a teaching position for two years at the Colorado School of Mines. He returned briefly to Wyoming in 1922 and married Agnes Bell.

Deming continued his formal education at the University of Colorado in Boulder, earning a master's degree in mathematics and physics in 1924. With the support and recommendation from one of his professors, he was accepted to Yale University as a doctoral candidate with a scholarship and part-time teaching position during the school year. During the summers, he travelled to Chicago to conduct research on telephone transmitters at the Western Electric Hawthorne plant. While working at the Hawthorne plant, Deming met and was mentored by

Walter Shewhart, the pioneer of statistical process control. After completing his dissertation in 1928 on the packing of nucleons in helium atoms, Deming was awarded a Ph.D. degree in mathematical physics.

Although Deming found employment with the U.S. Department of Agriculture working in the Fixed Nitrogen Research Laboratory, times became difficult. In 1930 he was left widower, raising his daughter alone. He remarried two years later. Lola Elizabeth Shupe remained his wife for 52 years until her death in 1984.

In 1933, Deming became head of the Mathematics and Statistics Department at the Graduate School of the U.S. Department of Agriculture. During his tenure, he developed basic research on sampling. Although his scientific papers focused on physics, his work involved the application of statistical methods, which extended into other disciplines.

During the 1930s, the U.S. Census Bureau began working on the implementation of statistical sampling as it related to demographics. Traditional full-count methods were tedious. In many cases, census figures were outdated before they were calculated. Improved methods were needed. The Census Bureau named Deming the head of mathematics and advisor on sampling in 1939. While in this position, Deming began applying Shewhart's statistical control methods to non-manufacturing applications. He led the development of sampling procedures, which are now used throughout the world for current information on employment, housing, trade, and production.

After World War II, Deming established his private consulting practice and developed the 14 points for management, the seven deadly diseases, the Deming cycle for continuous improvement, and the system of profound knowledge. In 1946 Deming led the formation of the American Society for Quality Control. As a consultant to the War Department, he visited Japan for the first time in 1947 to aid in the 1951 census. He returned numerous times throughout 1950s as a teacher and consultant to Japanese industry through the Union of Japanese Scientists and Engineers. In 1960, the Emperor of Japan recognized Deming with the Second Order Medal of the Sacred Treasure for the improvement of the Japanese economy through the statistical control of quality.

Although Deming is best known for his work in Japan, he served as a consultant to many other countries, including Mexico, India, Greece, Turkey, Taiwan, Argentina, and France. He was also a member of the United Nations Sub commission on Statistical Sampling from 1947 to 1952.

Although Deming was awarded the Shewhart's Medal in 1955 from the American Society for Quality Control, most businesses in the United States ignored his methods until 1980s. On June 15, 1987, President Reagan presented Deming with the National Medal of Technology. After 40 years, his own country publicly acknowledged the significance of his work. Deming continued consulting until his death in 1993."

One can see that the life of WED was not an easy stroll. Being a youth he starved. Before Yale University he was a student of second-rate schools. When he got his education the Great Depression was taking place and that's why he could not get the work according to his education. He was forced to work at the agriculture laboratory (though whenever he worked he accumulated that practical experience which became one of the sources of his next achievements). He lost his first wife and had his little daughter to take care of. Because of being acquainted with Walter Shewhart he started to apply Shewhart ideas not in the industry but for the survey sampling analysis. Later he used this technique for many other applications. As a result just before WWII he had quite a good work. But the war destroyed all peaceful plans. At the beginning of the war WED suggested to Stanford to carry out a set of ten days workshops on the application of statistical methods in order to teach quality control stuff which worked for defense industry. This task was very important because a great amount of professionals were mobilized to the army and many young men and women came to work instead of them. During all war WED ran these short classes on the application of statistical methods to quality control. About 30000 persons were taught at these courses. Someone could conclude that it was a great

deal but WED was very disappointed by the results. The thing was that when these specialists tried to apply WED's advices at their workplaces they all too often found themselves in a conflict with the top management of the company. As WED he remembered (Deming, 1986, p. 487): "Statistical methods had taken fire in America around 1942, following a series of 10-day intensive courses for engineers initiated by Stanford University on a suggestion from this author. The War Department also gave courses at factories of suppliers. Brilliant applications attracted much attention, but the flare of statistical methods by themselves, in atmosphere in which management did not know their responsibilities, burned, sputtered, fizzled, and died out. What the men did was to solve individual problems. Control charts proliferated, the more the better. Quality control department sprouted. They plotted charts, looked at them, and filed them. They took quality control away from everybody else, which was of course entirely wrong, as quality control is everybody's job. They put out fires, not perceiving the necessary to improve process ... There was no structure to teach management their responsibilities."

Having analyzed the situation WED came to conclusion that he had addressed his message to people who could not use its fruits. First of all it was necessary to speak with business owners and top management. Otherwise some kind of conflict is inevitable. Being depressed WED decided to become a private consultant. At that moment General D. MacArthur who was a head of the occupational administration in Japan invited W. Shewhart to lecture in Japan. He made this in accordance with the program approved by the USA government. The task was to ensure in short time the solvent demand from the Japanese population because otherwise the Japanese could not buy American goods. After the war American industry was rapidly increasing and the necessity for new markets was very sharp. It has happened that W. Shewhart was ill and asked WED to go to Japan instead of him. Thus a row of WED's visits to Japan started.

The first was in 1947. Having arrived to Japan WED felt that he can't repeat his American mistake – he must find the way to talk to CEO's. He had no friends in Japan but he was acquainted with Tokyo University professor Kaoru Ichikawa – a chemist, working in the area of statistics, who not long before this was in the USA and met WED there. WED called to him and explained him the situation. This call happened to be one of the luckiest events for WED's plans. Mister Ichiro Ichikawa - K. Ichikawa's father – was the head of a very influential organization named Nixon Kei-dan-ren (the Federation of Economic Societies of Japan). Due to his help the problem that seemed to be unresolvable was solved and in 1950 WED gave a talk to CEO's of 21 leading Japanese companies. The miracle has happened: simultaneously in the hall there were leaders who ran about 85% of national capital of the country. These were leaders who took strategic decisions for future and ran their businesses. Though they did not understand a great part of WED's ideas they made a decision to start working in the field of quality control and quality improvement on a big scale. The first results appeared so quickly that no longer than in 1960 the Emperor awarded WED Japan's Order of the Sacred Treasure, Second Class. It was the highest reward that a foreigner could get in Japan and the first awarded to an American. As WED declined to receipt royalties from the transcripts of his 1950 lectures the Japanese Union of Scientists and Engineers (JUSE) established the Deming Prize (Deming..., 2008) which became the first prize in the quality field and which continues to influence this area up to nowadays.

When Josef Juran later came in to Japan in 1954 on the invitation of JUSE he was asked to explain some specific advices of WED and Juran easily made this. As a result the process of quality improvement had been accelerated and Japanese goods started their winning attack on the world markets. In his 1950 lecture WED made a prognosis that Japanese will be on the market in 5 years – and they did it in 4¹.

When WED died there was not any papers linked with his 1950 seminar (why this has happened is not clear because his archive was ideally ordered). So when the 50th anniversary was

¹It should be wrong to think that what is called The Japanese Economic Miracle is totally obliged to a single person even such great as WED was. Undoubtedly this miracle should be credited to the Japanese people first of all and then additionally to the names of WED and Juran and to many other Americans starting from General D. MacArthur and H. Sarason and Ch. Protzman, and many others (Hopper, 2008).

coming the synopsis made by several participants were gathered and the reverse translation from Japanese into English was made. The results were published on the Deming Electronic Network (DEN) due to the efforts of John Dowd who organized this work and Jim Clauson who was a permanent moderator of DEN until it was closed because of some problems with site ownership. Today the text of WED 1950 lecture may be found here <http://www.jsdstat.com/Statblog/wp-includes/Hakone.pdf>. It is worth noting one psychological nuance. WED himself understood that his ideas turned out to be unrequired in the USA but Japanese took his ideas as if they were what Americans had managed to do and what had helped them to win in WWII. This feeling was a great motivator for Japanese people.

So WED became famous in Japan and continued visiting Japan rather often. But another 30 years passed before he became famous in his native country. It has happened only in 1980 when NBC News showed in prime time the TV show “If Japan Can ...Why Can’t We?”- https://en.wikipedia.org/wiki/If_Japan_Can..._Why_Can%27t_We%3F . This became the beginning of Quality Revolution in the USA and after this event WED - who has been already 80 years old - was being invited to practically all famous USA companies which wanted to know how to reach the excellence in the quality of their products and services. In 1987 president R. Reagan awarded him with the National Medal of Technology. Simultaneously he continued his activity as student lecturer and book writer.

Having created the ideology of new management – 14 points for management [1] - WED found out that they turned out to be insufficient. There were very important obstacles which have not been included into the famous 14 points and which prevented companies from starting any improvements. So 7 deadly diseases appeared (Deming, 1986), then deadly sins, and then it became clear that this list might be continued... . Moreover it became obvious that four days even of inspired comments² are not enough for deep understanding of his teaching. So WED started pondering over the next step – more comprehensive approach to the theory of management of any organization. And he created what he called the System of Profound Knowledge (SPK) – the basics for the system analysis of any organization. This work has not been finished due to WED’s death in 1993 but its most important features are claimed in the last book of WED “The New Economics” (Shewhart, 1986) and the SPK became an integral part of WED’s teaching.

Thus though WED’s life started on a negative note there was a major chord in the end of it. He became worldwide quality guru and the future of his ideas seemed to be bright and highly promising. There are no doubts that his name has been included into the history of human civilization. So let us say a bit about his predecessors and followers and then transfer to the fate of his ideas in the 21st century? Are they thriving? If not, why? Is the revision of his teaching necessary right now? Will it be necessary in the future?

Rather interesting thought about WED’s predecessor stated one of the “fathers” of current management Peter Drucker (Drucker, 1999). He knew WED closely and cooperated with him. If one tries to sum up everything P. Drucker wrote about WED then a phrase “Deming is today’s Taylor” emerges. For example in [10, p.139] P. Drucker writes: “What Deming did – and what makes Total Quality Management effective – is to analyze and organize the job exactly the way Taylor did. But then he added, around 1940, Quality Control based on a statistical theory that was only developed ten years after Taylor’s death. Finally, in 1970s, Deming substituted closed-circuit television and computer simulation for Taylor’s stopwatch and motion photos. But Deming’s Quality Control Analysts are the spit and image of Taylor’s Efficiency Engineers and function the same way”. The statistical methods, which Drucker is referring to, are those that were suggested by W. Shewhart in 1924 for industrial production (Shewhart, 1931) and which were later generalized by WED for any kind of human activity.

We think that Drucker’s viewpoint can be challenged though Taylor had an impact upon WED without doubts. Statistical approach included into management by WED is way more than

²For many years WED regularly carried out just a four-day workshop

a small detail added to Taylor's ideas. Statistical thinking, which was developed and widened by WED, turned out to be a self-sufficient notion of contemporary knowledge [12, 13]. Moreover WED was the first who understood the profound wisdom of using Shewhart control charts as a tool for analysis of process predictability or unpredictability. He was the first who understood that Shewhart control chart is not a statistical tool but an instrument of system-statistical thinking and that the application of this tool does not require knowledge of statistics. It is not accidental that his foreword to the reprint of Shewhart's 1939 book WED ended with the following words (Shewhart, 1986, p. ii): "Another half-century may pass before the full spectrum of Dr. Shewhart's contribution has been revealed in liberal education, science, and industry". Today is 2015 so the mankind still has about 20 years to possess all power of Shewhart-Deming ideas, which are the part and parcel of any improvements in any fields of human activity.

Surely WED had many supporters and followers. To name a few we'd like to mention here his disciple Henry Neave with his book [14] which we recommend for the first reading about WED's teaching - it seems to us more readable than OOC (Deming, 1986) or TNE (Deming, 1993). Another brochure that we highly recommend as well is "The germ theory of management" by Myron Tribus [15]. The books of P. Sholtes et al. [16] and W. Sherkenbach [17] shed additional light on some ideas of WED. Donald Wheeler made a great contribution into the practice of control chart application and explanation how to use this tool correctly [12, 18]. At last another Deming's disciple Joyce Orsini has made a gigantic work recently: she published a big collection of WED's works, papers and notes which essentially widens our knowledge of WED and his ideas [19].

The talk about predecessors and followers may be and must be much wider and longer but this is not the goal of our paper so now we'll try to answer several questions important for our further discussion:

1. What are the main ideas of WED's legacy?
 2. What was the main WED appeal to American management?
 3. Whether this appeal has achieved its goal?
 4. How would WED have changed his appeal today?
1. We think that the main in the WED legacy is the notion of the SPK and his idea about obsession for quality as the principal goal of any organization. The thing is that the SPK creates the basis for changes as - by using the words of WED - it ensures "a window into the world" because it is aimed at prediction and "without prediction, experience and examples teach nothing... The 14 points for management ... follow naturally as application of the system of profound knowledge, for transformation from the present style of Western management to one of optimization"[2].
Concerning the obsession for quality we'd like to note that from WED's viewpoint "Our (America's) problem is quality [19, p.10] and this goal is much more important because "Paper profits, the yardstick by which stockholders and Boards of Directors often measure performance of top management, make no contribution to material living for people anywhere, nor do they improve the competitive position of a company or of American industry. Paper profits do not make bread; improvement of quality and productivity do" [19, p.7].
 2. The main appeal of WED to western managers is his suggestion to reject from the deeply established carrot-and-stick policy of extrinsic motivation and transform that obsolete management style to the policy based on intrinsic motivation which is impossible without mutual trust and cooperation and which is the only effective way to increase productivity in the 21st century [10]. In order to reach this goal the CEOs need to possess the basic elements of WED's theory: appreciation for a system; knowledge about variation; theory of knowledge; psychology.
 3. The answer to our third question is an unconditional "NO". Of course WED's ideas are not forgotten and there is a small number of people worldwide who are partisans of WED's teaching and who are trying to implement WED's 14 points into their companies. There are

companies, which try to adhere to WED's style of management, and there are Deming Associations in many countries. But we are sure that unfortunately the ideas of WED have not become the natural part of everyday practice. Most of the managers in Europe, Asia, the USA and Russia know nothing or almost nothing about the SPK, they are not engaged in the fight for quality, and they continue to consider their employees as the workforce (resource) that should be controlled and managed by them – bosses - at their own discretion. As a proof one may give an unlimited number of references and examples so we'll confine ourselves with two figures below plus the relatively recent book of M. Micklewright "Out of another @#&*% crisis!: motivation through humiliation" [20]. Fig.1 shows that the frequency of requests about WED during last ten years (Google Trends does not present data for bigger period) was steadily decreasing and finally is about 5 times lower in 2014 than in 2004. Fig.2 shows that a number of requests about WED is several orders of magnitude smaller than about such management guru as P. Drucker or M. Porter and notably smaller than for such authors as J. Collins or T. Peters.

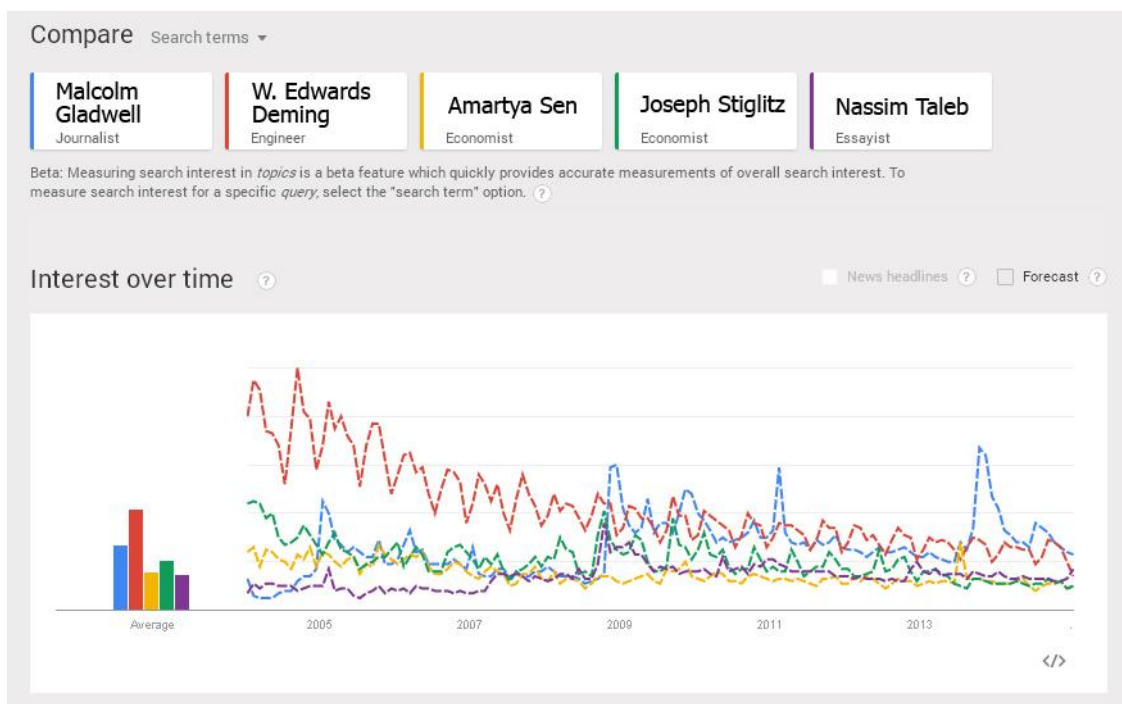


Fig. 1. The results of search in Google Trends for the frequency of requests about the shown names from 2004 till 2014. WED – in red.

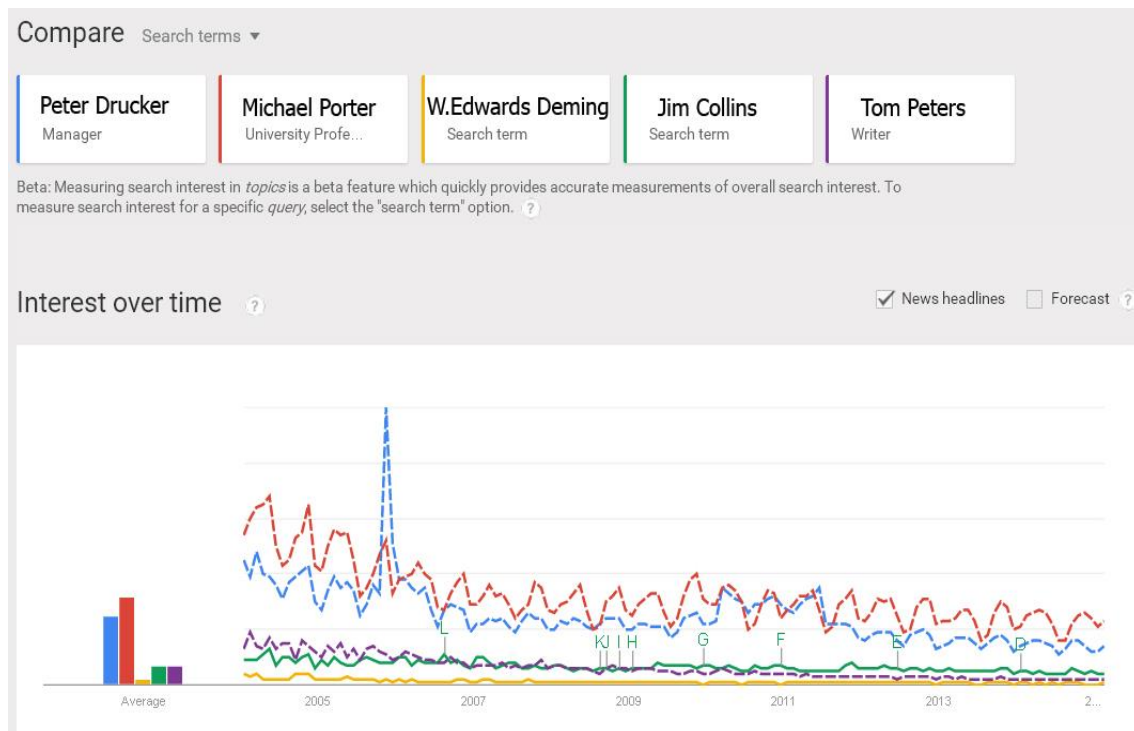


Fig. 2. The results of search in Google Trends for the frequency of requests about the shown names from 2004 till 2014. WED – in yellow.

All M. Micklewright's book is a proof of the fact that America have not learned any lessons and learned nothing from WED and that American management continues his obsolete practice of bad management described not only by WED but also by numerous others (see, for example, [10, 21, 22, etc.]). It is worth noting that WED's words about paper profits not giving people any real things point out one of the main reasons of economic crises of last decades and the insistent repeatability of such events is one of the most overt evidences that western style of management (prevailing in Russia as well) continues to refuse stubbornly the savvy advices of WED, Drucker, and many others.

Why?

Here we step on the shaky ground of guesses and suppositions. The first what may come into one's head is that 14 points are too numerous, they are difficult to be remembered, they are not familiar, need to be explained and interpreted. But in fairness the number of principles is not anything unusual. In 2010 and 2011 at the quality conferences [23,24] we presented our work in which we compared management principles of different gurus for 21 century. Our analysis was structured in accordance with the number of principles of "good" management from 4 and up to 33 so 14 are somewhere in the middle. The table below enumerates the authors of these papers under the heading "The number of management principles equals". Later we added to this list the works of many other authors having divided them into two main group: successful entrepreneurs – left column at the bottom and gurus, professors, consultants, popular journalists, economists, etc. – right column. For those who are interested in we presented the exact statements of good management principles from our list 4-33 in Appendix.

Table 1. *The list of papers containing suggestions about the principles of good management of the 21st century.*

<p>The number of management principles equals:</p> <p>4 - M. Carney, I. Getz [25]</p> <p>5 – J. Myrick [26]</p> <p>6 – S. Spear [27]</p> <p>6 –L.L. Berry, K.D. Seltman[28]</p> <p>8 - ISO 9000 [29]</p> <p>8 - EFQM [30]</p> <p>12 – D. Korten [31]</p> <p>14 – Deming E. [1]</p> <p>14 – J. Liker [32]</p> <p>25 - K. & W. Hopper [9]</p> <p>25 – G. Hamel et al. [33]</p> <p>33 –K. Matsushita [34]</p> <p>Successful entrepreneurs:</p> <p>R. Semler [35]</p> <p>T. Hsieh [36]</p> <p>B. Mycoskie [37]</p>	<p><i>Guru, professors, consultants, popular journalists, economists, etc.</i></p> <p>P. Drucker [10]</p> <p>J. Galbraith [38]</p> <p>H. Th. Johnson & A. Bröms [39]</p> <p>D. Moyo [40]</p> <p>J. Seddon [22]</p> <p>Osono, Emi, et al. [41]</p> <p>J. Sacks [42]</p> <p>A. Huffington [43]</p> <p>T. Jackson [44]</p> <p>M. Csikszentmihalyi [45]</p> <p>J. Pfeffer, R.Sutton [21]</p> <p>O. Brafman and R. Beckstorm[46]</p> <p>B. Burlingham [47]</p> <p>S. Shiba, D. Walden [48]</p> <p>D. Bolchover [49]</p> <p>V. Harnish [50]</p> <p>J. Collins [51]</p> <p>L. Bossidy, R. Charan [52]</p> <p>M. Rother [53]</p>
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The second idea is a peculiarity, which differs WED from many others. He never suggests the CEOs to copy the behavior of any companies. Many authors of many books of how-to-be-successful-type (both mentioned above or not) imply that if you follow their advices you will reach the goal of becoming successful. On the opposite WED outlines: examples and cases teach nothing without theory, so study the SPK, learn by experience, go to gemba, refuse from your prejudices, apply 14 points of management, apply the theory of variability and help your people improve everything they and you do. Or as M. Micklewright writes in his book “Dr. Deming did not teach us the tools; he taught us the principles” [20, p.35]. This is much more difficult path which starts from the top by admitting their own mistakes. But no complex system can be managed by a more simple system – this is “The Law of Requisite Variety” by W. R. Ashby [54].

Another peculiarity of WED’s advices is that while his negative recommendations are very specific: “Cease dependence on inspection...” or “End the practice of awarding...”, etc., his positive advices are very general: “Create constancy of purpose...” or “Adopt the new philosophy”, etc. Moreover he permanently insists: “Information is not knowledge” [1]. We think that just these peculiarities are the reason for much less popularity of WED comparing with for example such authors as J. Collins or T. Peters. As it was said by an American historian D. Boorstin “The greatest enemy of knowledge is not ignorance, it is the illusion of knowledge”. People want to have a recipe of quick success and not because they are not clever enough but because of the current system which requires fast success from the CEOs [9, 20, 21, 39, 48, 50]. Besides – as noted D. Kerridge in a letter to DEN (Febr., 05, 2005) – WED’s “message is neither eye-catching nor instantly appealing”.

Brothers Hopper in their book [9] suggest slightly different reasons of WED’s failure to persuade American CEOs to transform their management style (They discuss this point in the chapter 16 devoted to WED). Their list of causes has three points: (i) WED “subsumed most of management theory and practice under the one rubric of Quality ... it meant that the essential message was skewed. Good managers have to take account of many other factors, including cost and safety...”; (ii) WED did not pay any attention to managerial structure. “He had ... little or nothing of value to say on a whole range of critical subjects like delegation, multidivisional organizations, line-and-stuff or the role of middle managers; (iii) the SPK is not clear and easy, especially its third point “The theory of knowledge”. Brothers Hopper even write, “WED would

have done better to stick to his Fourteen Points and forget about Profound Knowledge”. Besides they outline, “Boards (of Directors) do not like having their outlook transformed”. We think that (i) is right but one should take into account that the notion of Quality is very broad and may be very vague. And if one understands Quality widely enough not only as Quality of a certain product or service but as Quality of everything including both material and immaterial things, then it becomes clear that the problem was not in skewed message. The problem was in grasping the wide notion of Quality. We’ll return to this point later in our paper. But one important note should be made here. The experience of many companies all over the world revealed an interesting pattern. If, for example, the main goal of a company is to decrease cost then cost will go down but simultaneously the quality (and safety, and employees’ satisfaction) will go down too – route 1 on the fig.3. If the same company with the same initial state has the quality improvement as its main goal – the quality will go up and the cost will go down – route 2. By other words the final state of improvement efforts depends on the task that a company sets (the reasons for such behavior deserve being discussed but not here).

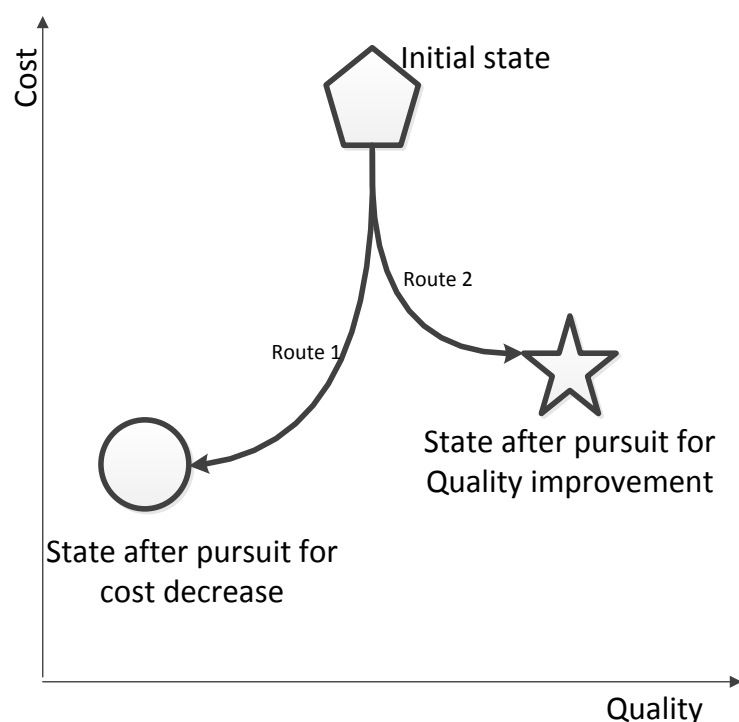


Fig. 3. *The routes of cost and quality in dependence on the organization goal*

The (ii) argument of WED’s failure seems less than plausible to us because as fairly noted P. Drucker “... it should have become clear that there is no such thing as the one right organization... a given organization structure fits certain tasks in certain conditions and at certain times [10, p.11]. We think that it was obvious to WED: any top manager armed with his system of Profound Knowledge will be able to easily create the necessary organizational and managerial structure. Finally the structure is a tool but not a principal issue (though a wrong tool may lead to failure, of course). What about the (iii) cause it is worth repeating what was said above about managing of any complex system. The SPK is not easy to comprehend and it should be like that because it is a theory for managing very complicated systems. As Albert Einstein said: “Everything should be made as simple as possible, but not simpler”. Besides we must not forget that WED has not finished this work – the SPK waits for those who will be able to develop it further. In respect to resistance to transformation – here we agree with W.&K. Hopper completely and this is the problem, which has been discussed for years in countless amount of publications.

4. The answer to our forth question WED would have started from the analysis of what had changed in that system which defines the current style of management. Our answer to this question: NOTHING ESSENTIAL. And if this is like that almost nothing should be changed neither in the SPK nor in the 14 points– until the system changes.

Of course many statements of the 14 points could be restated by using the current style of business lingo, and without doubt the significance of some points decreased while some other increased, but all such changes are not so important and not worth being discussed. And the whole situation is very sad:

- System approach to management is very rare in practice though is being stated everywhere by words;
- The knowledge of the theory of variability almost does not occur among CEOs;
- The theory of knowledge and psychology problems are being discussed by managers but as long as these discussions are going without understanding the SPK they are hardly useful.

Why we are so sure that nothing essential has changed since WED claimed his 14 points and that today's managers know about the SPK not more than their predecessors at the end of the last century?

In addition to what has already been said above it is possible to affix two kinds of objective evidences. They may be divided into factual and theoretical. The factual are based on the fact that pursuit of profit remains the main goal of the most part of the companies; ratings and other numerical assessments are thriving in business, education, government, and health care; almost everywhere the CEOs are trying to assess and rank their people, and so on. Theoretical evidences are based on the analysis of books, papers, presentations and publications in general and special journals as well as in different mass media. We have already told about books shown in the table above. In no way we consider this list as a complete one and surely it may easily be widened numerously (what is impossible within the frames of this paper). So here is our main conclusion:

**The System of Profound Knowledge by Dr. Deming
covers all facets of those publications that were analyzed by us
and in fact is much wider than majority of them.**

In fact all authors (in different words) insist that management of the 21st century should be humanistic, system-oriented and focused not on the profit but on "... something that human beings do for the happiness of other human beings"[34]³. Here we return to the problem of "Whether the obsession for Quality (in its wide sense) should be the only goal of every organization?" We think that it should not. The problem is: What may be substituted instead of Quality? Our answer is simple: K. Matsushita's phrase again - "... something that human beings do for the happiness of other human beings". But look: Quality in a wide sense includes this statement... And an important addition is needed: In no case the purpose of any organization can be money, or profits, or any qualitative indices. By other words it should be immaterial and exciting for all members of the organization.

Now let us return to our survey of principles of good management. The majority of principles are stated as good wishes and it is not clear whether they may be implemented into the real life or not and if yes then how. This is again in contrast with WED who was very clear while explaining how his points should be introduced.

Practically all authors with very rare exceptions do not understand the role of variability in our life and how variability impacts on current management and methods needed to management transformation. Meanwhile this factor is affecting human society more and more. The growth of this influence goes because of two main factors. The first one is an increase in the globalization and openness of the world [54, 55] that results in an increase of uncertainty, which

³In the book "The principles of success" by Konosuke Matsushita this is a number 1 principle [35].

surrounds us (we all are living in a system which is getting bigger and bigger, it has more and more interrelating elements, it becomes more and more complicated and less and less controllable)⁴. The second factor – rare unpredictable events which impact on everybody and everything – “the black swans” as N. Taleb called them [56], which fly upon us more and more often.

Many people today agree that the current system of assessment of companies and people need to be changed and first of all these changes must take into consideration immaterial sides of human activity plus long-term consequences from today’s decisions. All these problems WED discussed long before they became the theme of business media and business conferences.

At last as an evidence of our statement that the SPK together with 14 points embraces the majority of today’s business recommendations we decided to look through one of the most recent books containing recipes for becoming successful and to look how these recipes match WED’s ideas. To this end we chose the book of Verne Harnish (VH) [50] because (1) it has just been published; (2) it is devoted to successful growth; and (3) it is vividly written and contains very clear and very numerous and practical advices how to scale up. According to [50] the key to scaling are four components: People, Strategy, Execution, and Cash. Key question about People is: “Are the stakeholders (employees, customers, shareholders) happy and engaged in the business; and would you “rehire” all of them?” - Obviously this is another wording of many WED’s comments on his 14 points and we are sure he would have supported this point. Key question about strategy is: “Can you state your firm’s strategy simply – and is it driving sustainable growth in revenue and gross margins?” For clear strategic thinking the authors suggest using a simple Think, Plan, Act, and Learn cycle, which in our eyes is merely another form of WED’s PDSA. And the link between People and Strategy is ensuring by The Core, which consists of Values, Purpose (Mission), and Competences. When writing about the Core Purpose VH outlines: “Without a Purpose more heartfelt than that of making money, employees will pour their enthusiasm and energy into something else. Research finds that if you ignite and capture their hearts, not just their heads, they will give you 40% more discretionary effort” – and again we are sure WED would have agreed with VH except for giving a much higher estimate of additional percent. In the chapter about Execution there is a subsection about Data. It starts as follows: “The fundamental job of a leader is prediction, according to the late business consultant W. Edwards Deming”. And a bit later VH outlines: “quantitative metrics alone provide an incomplete view”. At last in the Cash chapter VH writes about the ways to improve Cash Conversion Cycle. Here are his recommendations how-to: (1) Shorten cycle times; (2) Eliminate mistakes; (3) Change business model. All these points may be found in OOC and TNE. Surely the book [50] contains much more tools and procedures, and it is written in a modern style of business bestsellers, but – again and again – most important ideas and most general principles (not tools) are the same as WED advocated in his books and at his seminars.

In the cited above papers [23, 24] we came to conclusion that management of 21st century should be

1. People-oriented (includes two elements of the SPK: the theory of knowledge and psychology)
2. System-oriented (includes understanding the system from the SPK)
3. Uncertainty-oriented, (includes variability element from the SPK)

And this completely matches the SPK. So until the current system is the same as 20-30 years ago no revisions of WED’s ideas are necessary. Some attempts of such revision - for example in December issue of “Quality Progress” [57] – look so unconvincing that hardly deserve being discussed. Much more interesting is the question about the future of 14 points and the SPK when the current style of management changes in principle. We have no doubts that this will happen sooner or later (of course if one doesn’t consider the apocalyptic scenario of the future). There are many facts in favor of this thought but unfortunately they are quite uncoordinated yet:

⁴Simultaneously variability of many processes is decreasing due to technology improvements.

The fast growth of a number of altruistic and self-organized communities (funds with very different goals, etc.);

The growth of a number of companies that has no goal to scale up [47];

The growth of a number of companies that has a goal to do something for the happiness of other people [25, 34-37, 47];

The growth of a number of experts who deliver very convincing proofs that pursuit for profits does not match the reality of 21st century [31, 40];

The growth of a number of supporters of not extensive development of the mankind [44].
And what will happen then?

One of the possible scenarios we discussed at the conference of Israel Society for Quality in 2014 [58]. Until the system of mass production dies and is substituted by what will be the next – practically all 14 points of WED will keep their actuality though relative significance of some points may increase while others – decrease.

But if we look into the future far ahead when the third industrial revolution becomes reality then the 14 points will lose their actuality naturally because the current style of management will simply die due to the lack of necessity to control people who are working not for the survival but for getting pleasure from what they are doing. What about the SPK – it will stay because both system approach and variability understanding will be the necessary conditions of making reasonable decisions in the future world. Though some specific statements may be reformulated in accordance with future reality.

We'd like to finish this paper optimistically. In November 1991 in Moscow the international conference "The World's experience to Soviet economy" was being held. WED was 91 years old and he could not come but he asked his friend Peter Sholtes to read his message to the participants [59, in Russian]. Here are some sentences from that message: ***"Under good management each person get pleasure from his/her work. Everyone understands that other people on the other stages of the process depend on him/her. And he/she in his/her turn depends on those before. These principles may be applied in agriculture, education, government, all areas of production and servicing. Quality and strong competitiveness are inevitable consequences of good management"*** – and we think that these words are right today when 25 years have passed. We believe that the mankind will realize and accept WED's message let this take place in seven generations as the authors of [39] had suggested.

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Appendix

The statements of principles for the 21st century management from the list 4-33

John Galbraith (in fact he listed not principles of good management but principles of bad management – that's why he is absent in the left column of our table)

1. The so-called market system actually is a corporate system.
2. The power in corporations belongs to management.
3. Management is guided by the uncontrollable craving for power and self-enrichment
4. The using of GDP growth as a measure of society progress is not a harmless mistake.

B.M. Carney and I. Getz

1. Stop telling and start listening.
2. Start openly and actively sharing your vision of the company so people will “own” it.
3. Stop trying to motivate people
4. Stay alert.

Jack Myrick

1. Make them feel appreciated.
2. See their potential, not their flaws.
3. Lead with authority, not power.
4. Love them first.
5. Make them feel they are part of something special.

Steven Spear

1. One must formulate very specific goals and start moving to them by using the most advanced methods.
2. The control should be built into the process in order to find problems right away when and where they appear;
3. The problems should be solved so that root causes must be removed. To achieve this one should use PDSA cycle.
4. The problem solving should lead to the increase of process knowledge.
5. This knowledge should be spread all over the organization.
6. The leaders should help people and whole organization to move to self-perfection

Mayo Clinics (Berry L.L., Seltman K.D.)

1. Continual striving for ideal service quality and adherence to non-profit principles.
2. Constant and sincere wish to help each patient.
3. Constant commitment to professional development of each employee.
4. Aspiration to change in response to the change of society needs.
5. Constant commitment to achieve the top results in whatever one deals.
6. Utter honesty in all deeds.

ISO 9000

1. Customer focus
2. Leadership
3. Involvement of people
4. Process approach
5. System approach to management
6. Continual improvement
7. Factual approach to decision making
8. Mutually beneficial supplier relationship

EFQM

1. Achieving Balanced Results
2. Adding Value for Customers
3. Leading with Vision, Inspiration & Integrity
4. Managing by Processes
5. Succeeding through People
6. Nurturing Creativity & Innovation
7. Building Partnerships

8. Taking Responsibility for a Sustainable Future

David Korten

1. Redirect the focus of economic policy from growing phantom wealth to growing real wealth.
2. Recover Wall Street's unleashed profits, and assess fees and fines to make Wall Street theft and gambling unprofitable.
3. Implement full-cost market pricing.
4. Reclaim the corporate charter.
5. Restore national economic sovereignty.
6. Rebuild communities with a goal of achieving local self-reliance in meeting basic needs.
7. Implement policies that create a strong bias in favor of human-scale businesses owned by local stakeholders.
8. Facilitate and fund stakeholder buyouts to democratize ownership.
9. Use tax and income policies to favor the equitable distribution of wealth and income.
10. Revise intellectual property rules to facilitate the free sharing of information and technology
11. Restructure financial services to serve Main Street.
12. Transfer to the federal government the responsibility for issuing money

Edwards Deming⁵

1. Create constancy of purpose toward improvement of product and services, with the aim to become competitive and to stay in business, and to provide jobs.
2. Adopt the new philosophy.
3. Cease dependence on inspection to achieve quality
4. End the practice of awarding business on the basis of price tag.
5. Improve constantly and forever the system of production and service.
6. Institute training on the job.
7. Institute leadership.
8. Drive out fear.
9. Break down barriers between departments.
10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity.
11. Eliminate work standards (quotas) on the factory floor. Substitute leadership.
12. Remove barriers that rob the hourly worker of his right to pride of workmanship.
13. Institute a vigorous program of education and self-improvement
14. Put everybody in the company to work to accomplish the transformation.

Jeffrey Liker

1. Base your management decisions on a long-term philosophy, even at the expense of short-term financial goals.
2. Create continuous process flow to bring problems to the surface.
3. Use "pull" systems to avoid overproduction.
4. Level out the workload (*heijunka*). (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 are the foundation for continuous improvement and employee empowerment.
7. Use visual control so no problem is hidden.
8. Use only reliable, thoroughly tested technology that serves your people and processes.
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 *Dear Juozas*: Respect your extended network of partners and suppliers by challenging them and helping them improve.
11. Go and see for yourself to thoroughly understand the situation (*genchi genbutsu*).
12. Make decisions slowly by consensus, thoroughly considering all options, implement decisions rapidly (*nemawashi*).
14. Become a learning organization through relentless reflection (*hansei*) and continuous improvement (*kaizen*).

Brothers Hopper

1. All successful organizations, however simple, consist of systems within a system (*This is the Master Principle*)
2. All systems are nurtured by routines, which must be regularly reviewed and refreshed.
3. The most important sub-system in any organization is the managerial hierarchy, which is likely to be based on some form of line-and-staff.
4. The best type of hierarchy is "bottom-up".

⁵We abridged some words for compactness

5. Leadership should as far as possible be collective or “collegiate”.
6. The middle manager is the keystone of the managerial arch.
7. “One man, one boss” –
1. Meeting are “the medium of management work”
2. “Integ which should be re-stated as “one person, one boss” rated decision-making” leads to right conclusions.
3. Planning should be for the short term (say, one to four years), the medium term (say, five to eight years) and the long term (say nine years up).
4. You should make a careful study of mistakes and successes of the pioneers in your field – and learn from them.
5. Excellent internal communications in all directions – but above all upwards – which should be re-stated as “one person, one boss”
6. The manager must be a leader in both a practical and a moral sense.
7. You should use consultants sparingly – and “strategic” consultants never.
8. A manager should be aware of his responsibilities to society as a whole, including to his company’s employees as human beings.
9. If it ain’t broke, you should try to make it work better.
10. Avoid debt like the plague – or, if that is impossible, use it sparingly.
11. A manager should possess, or acquire what is known as “domain knowledge”, i.e. a profound understanding of the technology and business of his company, which can normally be gained only through a long apprenticeship in that company or in the same industry.
12. The testing and training of managers should be pragmatic and continuous.
13. Managers who wish to reach the top should start at or near the bottom.
14. Job rotation (sometimes known as intra-company mobility) is desirable to create the “rounded” executive.
15. Employment should in general be for the long term – by which is meant, at least, eight and, if possible, ten years..
16. Complementarity is one of the keys to making appointments.
17. The remuneration system should promote and reward group effort.
18. Avoid ostentation like the plague.

Gary Hamel, et al.

1. Ensure that the work of management serves a higher purpose.
2. Fully embed the idea of community and citizenship in management systems.
3. Reconstruct management’s philosophical foundations.
4. Eliminate the pathologies of formal hierarchy.
5. Reduce fear and increase trust.
6. Reinvent the means of control.
7. Redefine the work of leadership.
8. Expand and exploit diversity.
9. Reinvent strategy making as an emergent process.
10. De-structure and disaggregate the organizations.
11. Dramatically reduce the pull of the past.
12. Share the work of setting directions.
13. Develop holistic performance measures.
14. Stretch executives time frames and perspectives.
15. Create a democracy of information.
16. Empower the renegades and disarm the reactionaries.
17. Expand the scope of employee autonomy.
18. Create internal markets for ideas, talents and resources.
19. Depoliticize decision-making.
20. Better optimize trade-offs.
21. Further unleash human imagination.
22. Enable communities of passion.
23. Retool management for an open world.
24. Humanize the language and practice of business.
25. Retrain managerial minds.

Konosuke Matsushita

1. Business is something that human beings do for the happiness of other human beings.
2. Those who pursue business are artists at work on an endlessly unfolding canvas.
3. The healthy growth of a corporation depends on solid business principles.
4. A business is a public entity, it should never be thought of as a private possession.
5. If you do what naturally makes sense, like putting up an umbrella when it rains, your business will prosper

6. Recognize the fact that society knows best. If you strive to be accepted, you will prosper.
 7. If you manage your business with correct ideas and proper methods, it is bound to succeed.
 8. You cannot fail if you keep going until you do succeed.
 9. Success in business is not due to good times and failure is not due to bad times.
 10. Believing that the world is perpetually evolving is what makes vigorous business possible.
 11. Making a profit is part of the social responsibility of a corporation. Not to realize a profit is a crime against society.
 12. The outstanding entrepreneur strives to be a winner, but also to be a winner people will admire.
 13. By practicing "dam management", you can keep your company stable and constantly growing.
 14. The world is constantly moving forward. We should strive to make each day a little better than the day before.
 15. Every failure contains the seeds of success and every success harbors the danger of failure.
 16. Trust is something that takes time to build up, but that can be destroyed in an instant.
 17. To fall behind one day today could put you behind a year or for the rest of your life.
 18. The mission of a manufacturer is to offer good, affordable products and in abundant supply.
 19. You must find a way to demonstrate your respect and appreciation to each and every employee.
 20. Rely neither wholly on intuition nor completely on science.
 21. In competitive sports and business alike, in the last moment of the game you could win, or you could lose.
 22. If you do what you should do and don't do what you should not do, you will never lose
 23. A person who is truly successful becomes more modest and more humble with each success
 24. What kind of people you put together can determine whether their combined abilities are an asset or a liability.
 25. No matter what the field of endeavor, there are different roles to play, but the worth of each job is the same.
 26. First make the decisions dispassionately and then consider feelings, not the other way around.
 27. Much is to be learned from keeping an open mind to the opinions of others.
 28. When you delegate work, remember that almost more than ability enthusiasm will assure the job is done well.
 29. When hiring, focus 70 percent on a person's strong points and 30 percent on his or her weak points.
 30. The most effective approach to assigning work is to delegate responsibility without relinquishing involvement.
 31. An effective formula for training employees is 10 percent strict, 90 percent gentle.
 32. A report that says no problem exists could turn out to be the harbinger of a major problem.
 33. No matter how able, a leader cannot win the support of others unless he or she knows how to mete out appropriate rewards and punishments
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Short biographical notes

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