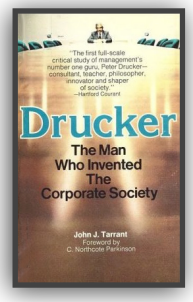
6: The Elements of Decision-making

by Peter Drucker in *The Effective Executive*

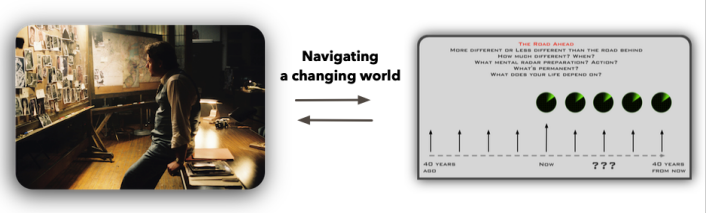


How is it possible ↓

to works toward horizons ↑ ↓

that aren't on your mental radar –

at the right point in time? ↓



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Thinking Broad and Thinking Detailed ↑ ↓

Intelligence, Information, Thinking

- "Most of the mistakes in thinking are **mistakes in perception**.
  - ❖ Seeing only part of the situation – broad
  - ❖ Jumping to conclusions

15 ❖ Misinterpretation caused by feelings" – Edward de Bono

16 ▪ Awareness without action is useless

17 The MEMO they – the enemies of the future – don't want you to SEE

18 «§§§»

19 Decision-making is only one of the tasks of an executive.

20 It usually takes but a small fraction of his time.

21 But to make decisions is the specific executive task.

22 Decision-making therefore deserves special treatment in a discussion of the effective executive. ‟

23 Only executives make decisions.

24 Indeed, to be expected—by virtue of position or knowledge—to make decisions that have significant impact on the entire organization, its performance, and results defines the executive. ‟

25 Effective executives, therefore, make effective decisions. ‟

26 They make these decisions as a systematic process with clearly defined elements and in a distinct sequence of steps.

27 But this process bears amazingly little resemblance to what so many books today present as "decision-making." ‟

28 Effective executives do not make a great many decisions.

29 They concentrate on the important ones.

30 They try to think through what is strategic and generic, rather than "solve problems."

31 They try to make the few important decisions on the highest level of conceptual understanding.

32 They try to find the constants in a situation.

33 They are, therefore, not overly impressed by speed in decision-making.

34 Rather they consider virtuosity in manipulating a great many variables a symptom of sloppy thinking.

35 They want to know what the decision is all about and what the underlying realities are which it has to satisfy.

36 They want impact rather than technique, they want to be sound rather than clever. ...

37 Effective executives know when a decision has to be based on principle and when it should be made on the merits of the case and pragmatically.

38 They know that the trickiest decision is that between the right and the wrong compromise and have learned to tell one from the other.

39 They know that the most time-consuming step in the process is not making the decision but putting it into effect.

40 Unless a decision has "degenerated into work" it is not a decision; it is at best a good intention.

41 This means that, while the effective decision itself is based on the highest level of conceptual understanding, the action to carry it out should be as close as possible to the working level and as simple as possible.

42 ## *Two Case Studies In Decision-Making*

43 [Theodore Vail & Bell Telephone System]

44 The least-known of the great American business builders, Theodore Vail, was perhaps the most effective decision-maker in U.S. business history.

45 As president of the Bell Telephone System from just before 1910 till the mid-twenties, Vail built the organization into the largest private business in the world and into one of the most prosperous growth companies. ...

46 That the telephone system is privately owned is taken for granted in the United States.

47 But the part of the North American continent that the Bell System serves (the United States and the two most populous Canadian provinces, Quebec and Ontario) is the only developed area in the world in which telecommunications are not owned by government.

48 The Bell System is also the only public utility that has shown itself capable of risk-taking leadership and rapid growth, even though it has a monopoly in a vital area and has achieved saturation of its original market. ...

49 The explanation is not luck, or "American conservatism."

50 The explanation lies in four strategic decisions Vail made in the course of almost twenty years.

51 [Our Business Is Service]

52 Vail saw early that a telephone system had to do something distinct and different to remain in private ownership and under autonomous management.

53 All over Europe governments were running the telephone without much trouble or risk.

54 To attempt to keep Bell private by defending it against government take-overs would be a delaying action only.

55 Moreover, a purely defensive posture could only be self-defeating.

56 It would paralyze management's imagination and energies.

57 A policy was needed which would make Bell, as a private company, stand for the interest of the public more forcefully than any government agency could.

58 This led to Vail's early decision that the business of the Bell Telephone Company must be anticipation and satisfaction of the service requirements of the public. ...

59 "Our business is service" became the Bell commitment as soon as Vail took over.

60 At the time, shortly after the turn of the century, this was heresy.

61 But Vail was not content to preach that it was the business of the company to give service, and that it was the job of management to make service possible and profitable.

62 He saw to it that the yardsticks throughout the system by which managers and their operations were judged, measured service fulfillment rather than profit performance.

63 Managers are responsible for service results.

64 It is then the job of top management to organize and finance the company so as to make the best service also result in optimal financial rewards.

65 [Public Regulation as the Only Alternative to Government Ownership]

66 Vail, at about the same time, realized that a nationwide communications monopoly could not be a free enterprise in the traditional sense—that is, unfettered private business.

67 He recognized public regulation as the only alternative to government ownership.

68 Effective, honest, and principled public regulation was, therefore, in the interest of the Bell System and vital to its preservation. ...

69 Public regulation, while by no means unknown in the United States, was by and large impotent when Vail reached this conclusion.

70 Business opposition, powerfully aided by the courts, had drawn the teeth of the laws on the statute books.

71 The commissions themselves were understaffed and underfinanced and had become sinecures for third-rate and often venal political hacks. ...

72 Vail set the Bell Telephone System the objective of making regulation effective.

73 He gave this as their main task to the heads of each of the affiliated regional telephone companies.

74 It was their job to rejuvenate the regulatory bodies and to innovate concepts of regulation and of rate-making that would be fair and equitable and would protect the public, while at the same time permitting the Bell System to do its job.

75 The affiliated company presidents were the group from which Bell's top management was recruited.

76 This ensured that positive attitudes toward regulation permeated the entire company.

77 [Bell Laboratories—the Creator of a Different Future and the Enemy of Today]

78 Vail's third decision led to the establishment of one of the most successful scientific laboratories in industry, the Bell Laboratories.

79 Again, Vail started out with the need to make a private monopoly viable.

80 Only this time he asked: "How can one make such a monopoly truly competitive?"

81 Obviously it was not subject to the normal competition from another supplier who offers the purchaser the same product or one supplying the same want.

82 And yet without competition such a monopoly would rapidly become rigid and incapable of growth and change. ‟

83 But even in a monopoly, Vail concluded, one can organize the future to compete with the present.

84 In a technical industry such as telecommunications, the future lies in better and different technologies.

85 The Bell Laboratories which grew out of this insight were by no means the first industrial laboratory, not even in the United States.

86 But it was the first industrial research institution that was deliberately designed to make the present obsolete, no matter how profitable and efficient. ‟

87 When Bell Labs took its final form, during the World War I period, this was a breath-taking innovation in industry.

88 Even today few businessmen understand that research, to be productive, has to be the "disorganizer," the creator of a different future and the enemy of today.

89 In most industrial laboratories, “defensive research” aimed at perpetuating today, predominates.

90 But from the very beginning, the Bell Labs shunned defensive research. …

91 ➤ The last ten or fifteen years have proven how sound Vail’s concept was.

92 Bell Labs first extended telephone technology so that the entire North American continent became one automated switchboard.

93 It then extended the Bell System’s reach into areas never dreamed of by Vail and his generation, e. g., the transmission of television programs, the transmission of computer data—in the last few years the most rapidly growing communications area—and the communications satellites.

94 The scientific and technical developments that make possible these new transmission systems originated largely in the Bell Labs, whether they were scientific theory such as mathematical information theory, new products and processes such as the transistor, or computer logic and design.

95 [The Mass Capital Market]

96 Finally, toward the end of his career, in the early twenties, Vail invented the mass capital market—again to ensure survival of the Bell System as a private business. …

97 ➤ Industries are more commonly taken over by government because they fail to attract the capital they need than because of socialism.

98 Failure to attract the needed capital was a main reason why the European railroads were taken over by government between 1860 and 1920.

99 Inability to attract the needed capital to modernize certainly played a big part in the nationalization of the coal mines and of the electric power industry in Great Britain.

100 It was one of the major reasons for the nationalization of the electric power industry on the European continent in the inflationary period after World War I. The electric power companies, unable to raise their rates to offset currency depreciation, could no longer attract capital for modernization and expansion. ...

101 Whether Vail saw the problem in its full breadth, the record does not show.

102 But he clearly saw that the Bell Telephone system needed tremendous sums of capital in a dependable, steady supply which could not be obtained from the then existing capital markets.

103 The other public utilities, especially the electric power companies, tried to make investment in their securities attractive to the one and only mass participant visible in the twenties: the speculator.

104 They built holding companies that gave the common shares of the parent company speculative leverage and appeal, while the needs of the operating businesses were satisfied primarily by debt money raised from traditional sources such as insurance companies.

105 Vail realized that this was not a sound capital foundation. ...

106 The AT&T common stock, which he designed to solve his problem in the early twenties, had nothing in common with the speculative shares except legal form.

107 It was to be a security for the general public, the "Aunt Sally's" of the emerging middle class, who could put something aside for investment, but had not enough capital to take much risk.

108 Vail's AT&T common, with its almost-guaranteed dividend, was close enough to a fixed interest-bearing obligation for widows and orphans to buy it.

109 At the same time, it was a common share so that it held out the promise of capital appreciation and of protection in inflation. ...

110 ➤ When Vail designed this financial instrument, the "Aunt Sally" type of investor did not, in effect, exist.

111 The middle class that had enough money to buy any kind of common share had only recently emerged.

112 It was still following older habits of investment in savings banks, insurance policies, and mortgages.

113 Those who ventured further went into the speculative stock market of the twenties—where they had no business to be at all.

114 Vail did not, of course, invent the "Aunt Sally's."

115 But he made them into investors and mobilized their savings for their benefit as well as for that of the Bell System.

116 This alone has enabled the Bell System to raise the hundreds of billions of dollars it has had to invest over the last half-century.

117 All this time AT&T common has remained the foundation of investment planning for the middle classes in the United States and Canada. ...

118 Vail again provided this idea with its own means of execution.

119 Rather than depend on Wall Street, the Bell System has all these years been its own banker and underwriter.

120 And Vail's principal assistant on financial design, Walter Gifford, was made chief officer of the Bell System and became Vail's successor. ⎓

121 The decisions Vail reached were, of course, peculiar to his problems and those of his company.

122 But the basic thinking behind them characterizes the truly effective decision.

123 [Alfred Sloan & GM Decentralization]

124 The example of Alfred P. Sloan, Jr., shows this clearly.*[1] Sloan, who in General Motors designed and built the world's largest manufacturing enterprise, took over as head of a big business in 1922, when Vail's career was drawing to its close.

125 He was a very different man, as his was a very different time.

126 And yet the decision for which Sloan is best remembered, the decentralized organization structure of General Motors, is of the same kind as the major decisions Theodore Vail had made somewhat earlier for the Bell Telephone System. ⎓

127 As Sloan has recounted in his recent book, *My Years with General Motors*,*[2] the company he took over in 1922 was a loose federation of almost independent chieftains.

128 Each of these men ran a unit which a few short years before had still been his own company—and each ran it as if it were still his own company. ⎓

129 ➤ There were two traditional ways of handling such a situation.

130 One was to get rid of the strong independent men after they had sold out their business.

131 This was the way in which John D. Rockefeller had put together the Standard Oil Trust, and J.P.Morgan, only a few years before Sloan, had put together U.S. Steel.

132 The alternative was to leave the former owners in their commands with a minimum of interference from the new central office.

133 It was "anarchy tempered by stock options" in which, it was hoped, their own financial interest would make the chieftains act for the best interests of the entire business.

134 Durant, the founder of General Motors, and Sloan's predecessor, Pierre du Pont, had followed this route.

135 When Sloan took over, however, the refusal of these strong and self-willed men to work together had all but destroyed the company. ▫

136 Sloan realized that this was not the peculiar and short-term problem of the company just created through merger, but a generic problem of big business.

137 The big business, Sloan saw, needs unity of direction and central control.

138 It needs its own top management with real powers.

139 But it equally needs energy, enthusiasm, and strength in operations.

140 The operating managers have to have the freedom to do things their own way.

141 They have to have responsibility and the authority that goes with it.

142 They have to have scope to show what they can do, and they have to get recognition for performance.

143 This, Sloan apparently saw right away, becomes even more important as a company gets older and as it has to depend on developing strong, independent performing executives from within. ...

144 Everyone before Sloan had seen the problem as one of personalities, to be solved through a struggle for power from which one man would emerge victorious.

145 Sloan saw it as a constitutional problem to be solved through a new structure; decentralization which balances local autonomy in operations with central control of direction and policy. ...

146 ➤ How effective this solution has been shows perhaps best by contrast; that is, in the one area where General Motors has not had extraordinary results.

147 General Motors, at least since the mid-thirties, has done poorly in anticipating and understanding the political temper of the American people and the direction and policies of American government.

148 This is the one area, however, where there has been no "decentralization" in General Motors.

149 Since 1935 or so it has been practically unthinkable for any senior GM executive to be anything but a conservative Republican.

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151 [1] * Business examples are chosen here because they are stilt taken in a small enough compass to be easily comprehended—whereas most decisions in government policy require far too much explanation of background, history, and politics. At the same time, these are large enough examples to show structure. But decisions in government, the military, the hospital, or the university exemplify the same concepts as the next sections in this and the following chapter will demonstrate.

152 [2] * New York, Doubleday, 1964.

153 [Major Common Features]

154 These specific decisions—Vail's as well as Sloan's—have major features in common, even though they dealt with entirely different problems and led to highly specific solutions.

155 They all tackled a problem at the highest conceptual level of understanding.

156 They tried to think through what the decision was all about, and then tried to develop a principle for dealing with it.

157 Their decisions were, in other words, strategic, rather than adaptations to the apparent needs of the moment.

158 They all innovated.

159 They were all highly controversial.

160 [All Five Decisions Went Directly Counter to What "Everybody Knew" at the Time]

161 Indeed, all five decisions went directly counter to what "everybody knew" at the time.

162 ➤ Vail had actually been fired earlier by the board of the Bell stem when he first was president.

163 His concept of service as the business of the company seemed almost insane to people who "knew" that the only purpose of a business is to make a profit.

164 His belief that regulation was in the best interest of the company, was indeed a necessity for survival, appeared harebrained if not immoral to people who "knew" that regulation was "creeping socialism" to be fought tooth and nail.

165 It was only years later, after 1900, when they had become alarmed—and with good reason—by the rising tide of demand for the nationalization of the telephone, that the board called Vail back.

166 But his decision to spend money on obsoleting current processes and techniques just when they made the greatest profits for the company and to build a large research laboratory designed to this end, as well as his refusal to follow the fashion in finance and build a speculative capital structure, were equally resisted by his board as worse than eccentricity. ‴

167 Similarly, Alfred Sloan's decentralization was completely unacceptable at the time and seemed to fly in the face of everything everybody "knew." ‴

168 The acknowledged radical among American business leaders of those days was Henry Ford.

169 But Vail's and Sloan's decisions were much too "wild" for Ford.

170 He was certain that the Model T, once it had been designed, was the right car for all time to come.

171 Vail's insistence on organized self-obsolescence would have struck him as lunacy.

172 He was equally convinced that only the tightest centralized control could produce efficiency and results.

173 Sloan's decentralization appeared to him self-destructive weakness.

174 The Elements Of The Decision Process

175 The truly important features of the decisions Vail and Sloan made are neither their novelty nor their controversial nature. They are:

176 1. The clear realization that the problem was generic and could only be solved through a decision which established a, rule, a principle;

177 2. The definition of the specifications which the answer to the problem had to satisfy, that is, of the “boundary conditions”;

178 3. The thinking through what is “right,” that is, the solution which will fully satisfy the specifications before attention is given to the compromises, adaptations, and concessions needed to make the decision acceptable;

179 4. The building into the decision of the action to carry it out;

180 5. The “feedback” which tests the validity and effectiveness of the decision against the actual course of events.

181 These are the elements of the effective decision process.

182 1. The first question the effective decision-maker asks is:

183 “Is this a generic situation or an exception?”

184 “Is this something that underlies a great many occurrences?

185 Or is the occurrence a unique event that needs to be dealt with as such?”

186 The generic always has to be answered through a rule, a principle.

187 The exceptional can only be handled as such and as it comes.

188 Strictly speaking, one might distinguish between four, rather than between two, different types of occurrences.

189 There is first the truly generic of which the individual occurrence is only a symptom.

190 [Example events: generic problems in the organization]

191 ➤ Most of the problems that come up in the course of the executive's work are of this nature.

192 Inventory decisions in a business, for instance, are not "decisions."

193 They are adaptations.

194 The problem is generic.

195 This is even more likely to be true of events within production.

196 Typically, a product control and engineering group will handle many hundreds of problems in the course of a month.

197 Yet, whenever these are analyzed, the great majority prove to be just symptoms—that is, manifestations of underlying basic situations.

198 The individual process control engineer or production engineer who works in one part of the plant usually cannot see this.

199 He might have a few problems each month with the couplings in the pipes that carry steam or hot liquids.

200 But only when the total workload of the group over several months is analyzed does the generic problem appear.

201 Then one sees that temperatures or pressures have become too great for the existing equipment and that the couplings, holding different lines together, need to be redesigned for greater loads.

202 Until this is done, process control will spend a tremendous amount of time fixing leaks without ever getting control of the situation.

203 [Example events: generic to the broader world]

204 Then there is the problem which, while a unique event for the individual institution, is actually generic. …

205 ➤ The company that receives an offer to merge from another, larger one, will never receive such an offer again if it accepts.

206 This is a nonrecurrent situation as far as the individual company, its board of directors, and its management are concerned.

207 But it is, of course, a generic situation which occurs all the time.

208 To think through whether to accept or to reject the offer requires some general rules.

209 For these, however, one has to look to the experience of others.

210 [Example events: the truly unique event]

211 Next there is the truly exceptional, the truly unique event.

212 ➤ The power failure that plunged into darkness the whole of northeastern North America from the St.

213 Lawrence to Washington in November 1965 was, according to the first explanations, a truly exceptional situation.

214 So was the thalidomide tragedy which led to the birth of so many deformed babies in the early sixties.

215 The probability of these events, we were told, was one in ten million or one in a hundred million.

216 Such concatenation of malfunctions is as unlikely ever to recur again as it is unlikely, for instance, for the chair on which I sit to disintegrate into its constituent atoms.

217 [Example events: the first manifestation of a new genus]

218 Truly unique events are rare, however.

219 Whenever one appears, one has to ask: Is this a true exception or only the first manifestation of a new genus? ,,,

220 And this, the early manifestation of a new generic problem, is the fourth and last category of events with which the decision process deals. ,,,

221 ➤ We know now, for instance, that both the northeastern power failure and the thalidomide tragedy were only the first occurrences of what, under conditions of modern power technology or of modern pharmacology, are likely to become fairly frequent malfunctions unless generic solutions are found.

222 All events but the truly unique require a generic solution.

223 They require a rule, a policy, a principle.

224 Once the right principle has been developed all manifestations of the same generic situation can be handled pragmatically; that is, by adaptation of the rule to the concrete circumstances of the case.

225 Truly unique events, however, must be treated individually.

226 One cannot develop rules for the exceptional.

227 The effective decision-maker spends time to determine with which of these four situations he is dealing.

228 He knows that he will make the wrong decision if he classifies the situation wrongly.

229 By far the most common mistake is to treat a generic situation as if it were a series of unique events; that is, to be pragmatic when one lacks the generic understanding and principle.

230 This inevitably leads to frustration and futility. ⁂

231 ➤ This was clearly shown, I think, by the failure of most of the policies, whether domestic or foreign, of the Kennedy administration.

232 For all the brilliance of its members, the administration achieved fundamentally only one success, in the Cuban missile crisis.

233 Otherwise, it achieved practically nothing.

234 The main reason was surely what its members called "pragmatism"; that is, its refusal to develop rules and principles, and its insistence on treating everything "on its merits."

235 Yet it was clear to everyone, including the members of the administration, that the basic assumptions on which its policies rested, the basic assumptions of the postwar years, had become increasingly unrealistic in international as well as in domestic affairs.

236 Equally common is the mistake of treating a new event as if it were just another example of the old problem to which, therefore, the old rules should be applied. ⁂

237 ➤ This was the error that snowballed a local power failure on the New York-Ontario border into the great northeastern blackout.

238 The power engineers, especially in New York City, applied the right rule for a normal overload.

239 Yet their own instruments had signaled that something quite extraordinary was going on which called for exceptional, rather than for standard, countermeasures. ⁂

240 By contrast, the one great triumph of President Kennedy, in the Cuban missile crisis, rested on acceptance of the challenge to think through an extraordinary, exceptional occurrence.

241 As soon as Mr. Kennedy accepted this, his own tremendous resources of intelligence and courage effectively came into play.

242 Almost as common is the plausible but erroneous definition of the fundamental problem.

243 Here is one example. ‟

244 ➤ Since the end of World War II the American military services have been plagued by their inability to keep highly trained medical people in uniform.

245 There have been dozens of studies and dozens of proposed remedies.

246 However, all of the studies start out with the plausible hypothesis that pay is the problem—whereas the real problem lies in the traditional structure of military medicine.

247 With its emphasis on the general practitioner, it is out of alignment with today's medical profession, which stresses the specialist.

248 The career ladder in military medicine leads from specialization to medical and hospital administration and away from research and specialized practice.

249 Today's young, well-trained physicians, therefore, feel that they waste their time and skill in the military service where they either have to work as general practitioners or become chairbound administrators.

250 They want the opportunity to develop the skills and apply the practice of today's highly scientific, specialized doctor. ‟

251 So far the military has not faced up to the basic decision.

252 Are the armed services willing to settle for a second-rate medical organization staffed with people who cannot make the grade in the highly scientific, research-oriented, and highly specialized civilian profession of medicine?

253 Or are they willing and able to organize the practice of medicine within the services in ways that differ fundamentally from the organization and structure of a military service?

254 Until the military accepts this as the real decision, its young doctors will keep on leaving as soon as they can.

255 Or the definition of the problem may be incomplete.

256 ➤ This largely explains why the American automobile industry found itself in 1966 suddenly under sharp attack for its unsafe cars—and also why the industry itself was so totally bewildered by the attack.

257 It is simply not true that the industry has paid no attention to safety.

258 On the contrary, it has worked hard at safer highway engineering and at driver training.

259 That accidents are caused by unsafe roads and unsafe drivers is plausible enough.

260 Indeed, all other agencies concerned with automotive safety, from the highway patrol to the schools, picked the same targets for their campaigns.

261 These campaigns have produced results.

262 Highways built for safety have many fewer accidents; and so have safety-trained drivers.

263 But though the ratio of accidents per thousand cars or per thousand miles driven has been going down, the total number of accidents and their severity has kept creeping up. ...

264 Long ago it should have been clear that a small percentage of drivers—drunken drivers, for instance, or the 5 per cent who are "accident-prone" and cause three quarters or so of all accidents—are beyond the reach of driver training and can cause accidents on the safest road.

265 Long ago it should have become clear that we have to do something about a small but significant probability of accidents that will occur despite safety laws and safety training.

266 And this means that safe-highway and safe-driving campaigns have to be supplemented by engineering to make accidents themselves less dangerous.

267 Where we engineered to make cars safe when used right, we also have to engineer to make cars safe when used wrong.

268 This, however, the automobile industry failed to see. ...

269 This example shows why the incomplete explanation is often more dangerous than the totally wrong explanation.

270 Everyone connected with safe-driving campaigns—the automobile industry, but also state highway commissioners, automobile clubs, and insurance companies—felt that to accept a probability of accidents was to condone, if not to encourage, dangerous driving—just as my grandmother's generation believed that the doctor who treated venereal diseases abetted immorality.

271 It is this common human tendency to confuse plausibility with morality which makes the incomplete hypothesis so dangerous a mistake and so hard to correct.

272 The effective decision-maker, therefore, always assumes initially that the problem is generic. ...

273 He always assumes that the event that clamors for his attention is in reality a symptom.

274 He looks for the true problem.

275 He is not content with doctoring the symptom alone. ⁂

276 And if the event is truly unique, the experienced decision-maker suspects that this heralds a new underlying problem and that what appears as unique will turn out to have been simply the first manifestation of a new generic situation.

277 This also explains why the effective decision-maker always tries to put his solution on the highest possible conceptual level. ⁂

278 He does not solve the immediate financing problem by issuing whatever security would be easiest to sell at the best price for the next few years. ⁂

279 If he expects to need the capital market for the foreseeable future, he invents a new kind of investor and designs the appropriate security for a mass-capital market that does not yet exist. ⁂

280 If he has to bring into line a flock of undisciplined but capable divisional presidents, he does not get rid of the most obstreperous ones and buy off the rest. ⁂

281 He develops a constitutional concept of large-scale organization. ⁂

282 If he sees his industry as necessarily monopolistic, he does not content himself with fulminating against socialism. ...

283 He builds the public regulatory agency into a deliberate "third way" between the Scylla of irresponsible private enterprise unchecked by competition and the Charybdis of equally irresponsible, indeed essentially uncontrollable, government monopoly. ...

284 One of the most obvious facts of social and political life is the longevity of the temporary. ...

285 British licensing hours for taverns, for instance, French rent controls, or Washington "temporary" government buildings, all three hastily developed in World War I to last "a few months of temporary emergency" are still with us fifty years later. ...

286 The effective decision-maker knows this.

287 He too improvises, of course. ...

288 But he asks himself every time, "If I had to live with this for a long time, would I be willing to?" ...

289 And if the answer is "No," he keeps on working to find a more general, a more conceptual, a more comprehensive solution—one which establishes the right principle. ...

290 As a result, the effective executive does not make many decisions.

291 But the reason is not that he takes too long in making one—in fact, a decision on principle does not, as a rule, take longer than a decision on symptoms and expediency.

292 The effective executive does not need to make many decisions.

293 Because he solves generic situations through a rule and policy, he can handle most events as cases under the rule; that is, by adaptation.

294 "A country with many laws is a country of incompetent lawyers," says an old legal proverb.

295 It is a country which attempts to solve every problem as a unique phenomenon, rather than as a special case under general rules of law.

296 Similarly, an executive who makes many decisions is both lazy and ineffectual.

297 The decision-maker also always tests for signs that something atypical, something unusual, is happening; he always asks: ‟

298 "Does the explanation explain the observed events and does it explain all of them?;

299 he always writes out what the solution is expected to make happen—make automobile accidents disappear, for instance—and

300 then tests regularly to see if this really happens; and

301 finally, he goes back and thinks the problem through again when he sees something atypical, when he finds phenomena his explanation does not really explain, or when the course of events deviates, even in details, from his expectations. ‟

302 These are in essence the rules Hippocrates laid down for medical diagnosis well over 2,000 years ago.

303 They are the rules for scientific observation first formulated by Aristotle and then reaffirmed by Galileo three hundred years ago.

304 These, in other words, are old, well-known, time-tested rules, rules one can learn and can systematically apply.

305 2. The second major element in the decision process is clear specifications as to what the decision has to accomplish.

306 What are the objectives the decision has to reach?

307 What are the minimum goals it has to attain?

308 What are the conditions it has to satisfy?

309 In science these are known as "boundary conditions."

310 A decision, to be effective, needs to satisfy the boundary conditions.

311 It needs to be adequate to its purpose.

312 The more concisely and clearly boundary conditions are stated, the greater the likelihood that the decision will indeed be an effective one and will accomplish what it set out to do.

313 Conversely, any serious shortfall in defining these boundary conditions is almost certain to make a decision ineffectual, no matter how brilliant it may seem. ▪▪

314 "What is the minimum needed to resolve this problem?" is the form in which the boundary conditions are usually probed.

315 "Can our needs be satisfied," Alfred P. Sloan presumably asked himself when he took command of General Motors

in 1922, “by removing the autonomy of the division heads?”

316 His answer was clearly in the negative.

317 The boundary conditions of his problem demanded strength and responsibility in the chief operating positions.

318 This was needed as much as unity and control at the center.

319 The boundary conditions demanded a solution to a problem of structure, rather than an accommodation among personalities.

320 And this in turn made his solution last.

321 It is not always easy to find the appropriate boundary conditions.

322 And intelligent people do not necessarily agree on them.

323 ➤ On the morning after the power blackout one New York newspaper managed to appear: The New York Times.

324 It had shifted its printing operations immediately across the Hudson to Newark, New Jersey, where the power plants were functioning and where a local paper, The Newark Evening News, had a substantial printing plant.

325 But instead of the million copies the Times management had ordered, fewer than half this number actually reached the readers.

326 Just as the Times went to press (so at least goes a widely told anecdote) the executive editor and three of his assistants started arguing how to hyphenate one word.

327 This took them forty-eight minutes (so it is said)—or half of the available press time.

328 The Times, the editor argued, sets a standard for written English in the United States and therefore cannot afford a grammatical mistake. …

329 Assuming the tale to be true—and I do not vouch for it—one wonders what the management thought about the decision.

330 But there is no doubt that, given the fundamental assumptions and objectives of the executive editor, it was the right decision.

331 His boundary conditions quite clearly were not the number of copies sold at any one morning, but the infallibility of the *Times* as a grammarian and as Magister Americae.

332 [A Decision That Does Not Satisfy the Boundary Conditions Is Ineffectual and Inappropriate]

333 The effective executive knows that a decision that does not satisfy the boundary conditions is ineffectual and inappropriate.

334 It may be worse indeed than a decision that satisfies the wrong boundary conditions.

335 Both will be wrong, of course.

336 But one can salvage the appropriate decision for the incorrect boundary conditions.

337 It is still an effective decision.

338 One cannot get anything but trouble from the decision that is inadequate to its specifications.

339 [Clear Boundary Conditions Thinking Is Needed So One Knows When a Decision Has to Be Abandoned]

340 In fact, clear thinking about the boundary conditions is needed so that one knows when a decision has to be abandoned.

341 There are two famous illustrations for this—one of a decision where the boundary conditions had become confused and one of a decision where they were kept so clear as to make possible immediate replacement of the outflanked decision by a new and appropriate policy.

342 [Schlieffen Plan]

343 ➤ The first example is the famous Schlieffen Plan of the German General Staff at the outbreak of World War I. This plan was meant to enable Germany to fight a war on both the eastern and the western fronts simultaneously without haying to splinter her forces between East and West.

344 To accomplish this, the Schlieffen Plan proposed to offer only token opposition to the weaker enemy, that is, to Russia, and to concentrate all forces first on a quick knockout blow against France, after which Russia would be dealt with.

345 This, of course, implied willingness to let the Russian armies move fairly deeply into German territory at the outbreak of the war and until the decisive victory over France.

346 But in August 1914, it became clear that the speed of the Russian armies had been underrated.

347 The Junkers in East Prussia whose estates were overrun by the Russians set up a howl for protection. ‴

348 Schlieffen himself had kept the boundary conditions clearly in his mind.

349 But his successors were technicians rather than decision-makers and strategists.

350 They jettisoned the basic commitment underlying the Schlieffen Plan, the commitment not to splinter the German forces.

351 They should have dropped the plan.

352 Instead they kept it but made its attainment impossible.

353 They weakened the armies in the West sufficiently to deprive their initial victories of full impact, yet did not strengthen the armies in the East sufficiently to knock out the Russians.

354 They thereby brought about the one thing the Schlieffen Plan had been designed to prevent: a stalemate with its ensuing war of attrition in which superiority of manpower, rather than superiority of strategy, eventually had to win.

355 Instead of a strategy, all they had from there on was confused improvisation, impassioned rhetoric, and hopes for miracles.

356 [Roosevelt]

357 ➤ Contrast with this the second example: the action of Franklin D. Roosevelt when becoming president in 1933.

358 All through his campaign Roosevelt had worked on a plan for economic recovery.

359 Such a plan, in 1933, could only be built on financial conservatism and a balanced budget.

360 Then, immediately before FDR's inauguration, the economy collapsed in the Bank Holiday.

361 Economic policy might still have done the work economically.

362 But it had become clear that the patient would not survive politically. ‟

363 Roosevelt immediately substituted a political objective for his former economic one.

364 He switched from recovery to reform.

365 The new specifications called for political dynamics.

366 This, almost automatically, meant a complete change of economic policy from one of conservatism to one of radical innovation.

367 The boundary conditions had changed—and Roosevelt was enough of a decision-maker to know almost intuitively that this meant abandoning his original plan altogether if he wanted to have any effectiveness.

368 [The Most Dangerous of All Possible Decisions]

369 But clear thinking about the boundary conditions is needed also to identify the most dangerous of all possible decisions: the one that might—just might—work if nothing whatever goes wrong.

370 These decisions always seem to make sense.

371 But when one thinks through the specifications they have to satisfy, one always finds that they are essentially incompatible with each other.

372 That such a decision might succeed is not impossible—it is merely grossly improbable.

373 The trouble with miracles is not, after all, that they happen rarely; it is that one cannot rely on them.

374 [Kennedy's Bay of Pigs]

375 ➤ A perfect example was President Kennedy's Bay of Pigs decision in 1961.

376 One specification was clearly Castro's overthrow.

377 But at the same time, there was another specification: not to make it appear that U.S. forces were intervening in one of the American republics.

378 That the second specification was rather absurd, and that no one in the whole world would have believed for one moment that the invasion was a spontaneous uprising of the Cubans, is beside the point.

379 To the American policy-makers at the time, the appearance of nonintervention seemed a legitimate and indeed a necessary condition.

380 But these two specifications would have been compatible with each other only if an immediate island-wide uprising against Castro would have completely paralyzed the Cuban army.

381 And this, while not impossible, was clearly not highly probable in a police state.

382 Either the whole idea should have been dropped or American full-scale support should have been provided to ensure success of the invasion. ⁂

383 It is not disrespect for President Kennedy to say that his mistake was not, as he explained, that he had "listened to the experts."

384 The mistake was failure to think through clearly the boundary conditions that the decision had to satisfy, and refusal to face up to the unpleasant reality that a decision that has to satisfy two different and at bottom incompatible specifications is not a decision but a prayer for a miracle.

385 [Defining the Specifications and Setting the Boundary Conditions Is a Judgement]

386 Yet, defining the specifications and setting the boundary conditions cannot be done on the "facts" in any decision of importance.

387 It always has to be done on interpretation.

388 It is risk-taking judgment. ⁂

389 Everyone can make the wrong decision—in fact, everyone will sometimes make a wrong decision.

390 But no one needs to make a decision which, on its face, falls short of satisfying the boundary conditions.

391 3. One has to start out with what is right rather than what is acceptable (let alone who is right) precisely because one always has to compromise in the end.

392 But if one does not know what is right to satisfy the specifications and boundary conditions, one cannot distinguish between the right compromise and the wrong compromise—and will end up by making the wrong compromise.

393 [Drucker's First Consulting Assignment]

394 ➤ I was taught this when I started in 1944 on my first big consulting assignment, a study of the management structure and management policies of the General Motors Corporation.

395 Alfred P. Sloan, Jr., who was then chairman and chief executive officer of the company, called me to his office at the start of my study and said: "I shall not tell you what to study, what to write, or what conclusions to come to.

396 This is your task.

397 My only instruction to you is to put down what you think is right as you see it.

398 Don't you worry about our reaction.

399 Don't you worry about whether we will like this or dislike that.

400 And don't you, above all, concern yourself with the compromises that might be needed to make your recommendations acceptable.

401 There is not one executive in this company who does not know how to make every single conceivable compromise without any help from you.

402 But he can't make the right compromise unless you first tell him what 'right' is." ⎓

403 The executive thinking through a decision might put this in front of himself in neon lights.

404 President Kennedy learned this lesson from the Bay of Pigs fiasco.

405 It largely explains his triumph in the Cuban missile crisis two years later.

406 His ruthless insistence then on thinking through what boundary conditions the decision had to satisfy gave him the knowledge of what compromise to accept (namely, tacitly to abandon the U.S. demand for on-the-ground inspection after air reconnaissance had shown such inspection to be no longer necessary) and what to insist on (namely, the physical dismantling and return to Russia of the Soviet missiles themselves).

407 For there are two different kinds of compromise.

408 One kind is expressed in the old proverb: "Half a loaf is better than no bread."

409 The other kind is expressed in the story of the Judgment of Solomon, which was clearly based on the realization that "half a baby is worse than no baby at all."

410 In the first instance, the boundary conditions are still being satisfied.

411 The purpose of bread is to provide food, and half a loaf is still food.

412 Half a baby, however, does not satisfy the boundary conditions.

413 For half a baby is not half of a living and growing child.

414 It is a corpse in two pieces.

415 It is fruitless and a waste of time to worry about what is acceptable and what one had better not say so as not to evoke resistance.

416 The things one worries about never happen.

417 And objections and difficulties no one thought about suddenly turn out to be almost insurmountable obstacles.

418 One gains nothing in other words by starting out with the question: "What is acceptable?"

419 And in the process of answering it, one gives away the important things, as a rule, and loses any chance to come up with an effective, let alone with the right, answer.

420 4. Converting the decision into action is the fourth major element in the decision process.

421 While thinking through the boundary conditions is the most difficult step in decision-making, converting the decision into effective action is usually the most time-consuming one.

422 Yet a decision will not become effective unless the action commitments have been built into the decision from the start. „

423 In fact, no decision has been made unless carrying it out in specific steps has become someone's work assignment and responsibility.

424 Until then, there are only good intentions.

425 [Policy Statements Without Action Commitment]

426 ➤ This is the trouble with so many policy statements, especially of business: They contain no action commitment.

427 To carry them out is no one's specific work and responsibility.

428 No wonder that the people in the organization tend to view these statements cynically if not as declarations of what top management is really not going to do.

429 Converting a decision into action requires answering several distinct questions:

- Who has to know of this decision?
- What action has to be taken?
- Who is to take it?
- And what does the action have to be so that the people who have to do it can do it?

The first and the last of these are too often overlooked—with dire results.

[Who Has to Know?]

➤ A story that has become a legend among operations researchers illustrates the importance of the question "Who has to know?"

A major manufacturer of industrial equipment decided several years ago to discontinue one model.

For years it had been standard equipment on a line of machine tools, many of which were still in use.

It was decided, therefore, to sell the model to present owners of the old equipment for another three years as a replacement, and then to stop making and selling it.

Orders for this particular model had been going down for a good many years.

But they shot up as former customers reordered against the day when the model would no longer be available.

No one had, however, asked, "Who needs to know of this decision?"

Therefore nobody informed the clerk in the purchasing department who was in charge of buying the parts from which the model itself was being assembled.

His instructions were to buy parts in a given ratio to current sales—and the instructions remained unchanged.

When the time came to discontinue further production of the model, the company had in its warehouse enough parts for another eight to ten years of production, parts that had to be written off at a considerable loss.

446 The action must also be appropriate to the capacities of the people who have to carry it out.

447 ➤ A chemical company found itself, in recent years, with fairly large amounts of blocked currency in two West African countries.

448 It decided that to protect this money, it had to invest it locally in businesses which would contribute to the local economy, would not require imports from abroad, and would, if successful, be the kind that could be sold to local investors if and when currency remittances became possible again.

449 To establish these businesses, the company developed a simple chemical process to preserve a tropical fruit which is a staple crop in both countries and which, up until then, had suffered serious spoilage in transit to its Western markets. ...

450 The business was a success in both countries.

451 But in one country the local manager set the business up in such a manner that it required highly skilled and, above all, technically trained management of the kind not easily available in West Africa.

452 In the other country the local manager thought through the capacities of the people who would eventually have to run the business and worked bard at making both process and business simple and at staffing from the start with nationals of the country right up to the top. ...

453 A few years later it became possible again to transfer currency from these two countries.

454 But though the business flourished, no buyer could be found for it in the first country.

455 No one available locally had the necessary managerial and technical skills.

456 The business had to be liquidated at a loss.

457 In the other country so many local entrepreneurs were eager to buy the business that the company repatriated its original investment with a substantial profit. ...

458 The process and the business built on it were essentially the same in both places.

459 But in the first country no one had asked: "What kind of people do we have available to make this decision effective?

460 And what can they do?"

461 As a result, the decision itself became frustrated.

462 [When People Have to Change Behavior, Habits, or Attitudes]

463 All this becomes doubly important when people have to change behavior, habits, or attitudes if a decision is to become effective action.

464 Here one has to make sure not only that responsibility for the action is clearly assigned and that the people responsible are capable of doing the needful.

465 One has to make sure that their measurements, their standards for accomplishment, and their incentives are changed simultaneously.

466 Otherwise, the people will get caught in a paralyzing internal emotional conflict.

467 [Vail's Decision That the Business of the Bell System Was Service]

468 ➤ Theodore Vail's decision that the business of the Bell System was service might have remained dead letter but for the yardsticks of service performance which he designed to measure managerial performance.

469 Bell managers were used to being measured by the profitability of their units, or at the least, by cost.

470 The new yardsticks made them accept rapidly the new objectives.

471 [Actions That Signal "They Don't Really Mean It"]

472 ➤ In sharp contrast is the recent failure of a brilliant chairman and chief executive to make effective a new organization structure and new objectives in an old, large, and proud American company.

473 Everyone agreed that the changes were needed.

474 The company, after many years as leader of its industry, showed definite signs of aging; in almost all major fields newer, smaller, and more aggressive competitors were outflanking it.

475 But to gain acceptance for the new ideas, the chairman promoted the most prominent spokesmen of the old school into the most visible and best-paid positions—especially into three new executive vice-presidencies.

476 This meant only one thing to the people in the company: "They don't really mean it." ‟

477 If the greatest rewards are given for behavior contrary to that which the new course of action requires, then everyone will conclude that this contrary behavior is what the people at the top really want and are going to reward.

478 [Summary]

479 Not everyone can do what Vail did and build the execution of his decisions into the decision itself.

480 But everyone can think what action commitments a specific decision requires, what work assignments follow from it, and what people are available to carry it out.

481 5. Finally, a feedback has to be built into the decision to provide a continuous testing, against actual events, of the expectations that underlie the decision.

482 Decisions are made by men.

483 Men are fallible; at their best their works do not last long.

484 Even the best decision has a high probability of being wrong.

485 Even the most effective one eventually becomes obsolete.

486 [Revisiting the Vail and Sloan Decisions]

487 ➤ If this needs documentation, the Vail and Sloan decisions supply it.

488 Despite their imagination and daring, only one of Vail's decisions, the decision that service was the business of the Bell System, is still valid today and applicable in the form in which he worked it out.

489 The investment character of the AT&T common share had to be drastically changed in the nineteen-fifties in response to the emergence of the institutional investors—pension trusts and mutual funds—as the new channels through which the middle class invests. ‟

490 While Bell Labs has maintained its dominant position, the new scientific and technological developments—especially in space technology and in such devices as the laser—have made it reasonably clear that no communications company, no matter how large, can any longer hope to provide by its own means all its own technological and scientific needs.

491 At the same time, the development of technology has made it probable—for the first time in seventy-five years—that new processes of telecommunications will seriously compete with the telephone, and that in major communications fields, for example, information and data communication, no single communications medium can

maintain dominance, let alone the monopoly which Bell has had for oral communications over distance.

492 And while regulation remains a necessity for the existence of a privately owned telecommunications company, the regulation Vail worked so hard to make effective—that is, regulation by the individual states—is becoming increasingly inappropriate to the realities of a nationwide and indeed international system.

493 But the inevitable—and necessary—regulation by the federal government has not been worked out by the Bell System and has instead been fought by it through the kind of delaying action Vail was so careful not to engage in. „

494 As to Sloan's decentralization of General Motors, it still stands—but it is becoming clear that it will have to be thought through again soon.

495 Not only have basic principles of his design been changed and revised so often that they have become fuzzy beyond recognition—the autonomous automotive divisions, for instance, increasingly are not in full control of their manufacturing and assembly operations and therefore not fully responsible for the results.

496 The individual makes of car, from Chevrolet to Cadillac, have also long ceased to represent major price classes the way Sloan originally designed them.

497 Above all, Sloan designed a U.S. company; and though it soon acquired foreign subsidiaries, it remained a U.S. company in its organization and management structure.

498 But General Motors is clearly an international company today.

499 Its great growth and major opportunities are increasingly outside the United States and especially in Europe.

500 It will survive and prosper only if it finds the right principles and the right organization for the multinational company.

501 The job Sloan did in 1922 will have to be done over again soon—it will predictably become pressing as soon as the industry runs into a period of economic difficulties.

502 And if not done over fairly drastically, Sloan's solution is likely to become a millstone around GM's neck and increasingly a bar to its success.

503 [Go Oneself and Look Is the Only Reliable Feedback]

504 When General Eisenhower was elected president, his predecessor, Harry S. Truman, said: "Poor Ike; when he was a general, he gave an order and it was carried out.

505 Now he is going to sit in that big office and he'll give an order and not a damn thing is going to happen." ⁂

506 The reason why "not a damn thing is going to happen" is, however, not that generals have more authority than presidents.

507 It is that military organizations learned long ago that futility is the lot of most orders and organized the feedback to check on the execution of the order.

508 They learned long ago that to go oneself and look is the only reliable feedback.*[1]

509 Reports—all a president is normally able to mobilize—are not much help.

510 All military services have long ago learned that the officer who has given an order goes out and sees for himself whether it has been carried out.

511 At the least he sends one of his own aides—he never relies on what he is told by the subordinate to whom the order was given.

512 Not that he distrusts the subordinate; he has learned from experience to distrust communications. ⁂

513 ➤ This is the reason why a battalion commander is expected to go out and taste the food served his men.

514 He could, of course, read the menus and order this or that item to be brought in to him.

515 But no; he is expected to go into the mess hall and take his sample of the food from the same kettle that serves the enlisted men. ...

516 With the coming of the computer this will become even more important, for the decision-maker will, in all likelihood, be even further removed from the scene of action.

517 Unless he accepts, as a matter of course, that he had better go out and look at the scene of action, he will be increasingly divorced from reality.

518 All a computer can handle are abstractions.

519 And abstractions can be relied on only if they are constantly checked against the concrete.

520 Otherwise, they are certain to mislead us. ...

521 To go and look for oneself is also the best, if not the only, way to test whether the assumptions on which a decision had been made are still valid or whether they are becoming obsolete and need to be thought through again.

522 And one always has to expect the assumptions to become obsolete sooner or later.

523 Reality never stands still very long. ...

524 Failure to go out and look is the typical reason for persisting in a course of action long after it has ceased to be appropriate or even rational.

525 This is true for business decisions as well as for governmental policies.

526 It explains in large measure the failure of Stalin's postwar policy in Europe but also the inability of the United States to adjust its policies to the realities of de Gaulle's Europe or the failure of the British to accept, until too late, the reality of the European Common Market. ⎓

527 One needs organized information for the feedback.

528 One needs reports and figures.

529 But unless one builds one's feedback around direct exposure to reality—unless one disciplines oneself to go out and look—one condemns oneself to a sterile dogmatism and with it to ineffectiveness.

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531 [1] * This was certainly established military practice in very ancient times—Thucydides and Xenophon both take it for granted, as do the earliest Chinese texts on war we have—and so did Caesar.

532 These are the elements of the decision process.

533 But what about the decision itself?

534 7: Effective Decisions

535 A decision is a judgment.

536 It is a choice between alternatives.

537 It is rarely a choice between right and wrong.

538 It is at best a choice between "almost right" and "probably wrong"—but much more often a choice between two courses of action neither of which is provably more nearly right than the other.

539 [Overview]

540 Most books on decision-making tell the reader: “First find the facts.”

541 But executives who make effective decisions know that one does not start with facts.

542 One starts with opinions.

543 These are, of course, nothing but untested hypotheses and, as such, worthless unless tested against reality.

544 To determine what is a fact requires first a decision on the criteria of relevance, especially on the appropriate measurement.

545 This is the hinge of the effective decision, and usually its most controversial aspect.

546 Finally, the effective decision does not, as so many texts on decision-making proclaim, flow from a consensus on the facts.

547 The understanding that underlies the right decision grows out of the clash and conflict of divergent opinions and out of the serious consideration of competing alternatives.

548 [Begin With Opinions]

549 To get the facts first is impossible.

550 There are no facts unless one has a criterion of relevance.

551 Events by themselves are not facts. …

552 ➤ In physics the taste of a substance is not a fact.

553 Nor, until fairly recently, was its color.

554 In cooking, the taste is a fact of supreme importance, and in painting, the color matters.

555 Physics, cooking, and painting consider different things as relevant and therefore consider different things to be facts. ⁂

556 But the effective executive also knows that people do not start out with the search for facts.

557 They start out with an opinion.

558 There is nothing wrong with this.

559 People experienced in an area should be expected to have an opinion.

560 Not to have an opinion after having been exposed to an area for a good long time would argue an unobservant eye and a sluggish mind. ⁂

561 People inevitably start out with an opinion; to ask them to search for the facts first is even undesirable.

562 They will simply do what everyone is far too prone to do anyhow: look for the facts that fit the conclusion they have already reached.

563 And no one has ever failed to find the facts he is looking for.

564 The good statistician knows this and distrusts all figures—he either knows the fellow who found them or he does not know him; in either case he is suspicious. ⁂

565 The only rigorous method, the only one that enables us to test an opinion against reality, is based on the clear recognition that opinions come first—and that this is the way it should be.

566 Then no one can fail to see that we start out with untested hypotheses—in decision-making as in science the only starting point.

567 We know what to do with hypotheses—one does not argue them; one tests them.

568 One finds out which hypotheses are tenable, and therefore worthy of serious consideration, and which are eliminated by the first test against observable experience. ‟

569 The effective executive encourages opinions.

570 But he insists that the people who voice them also think through what it is that the "experiment"—that is, the testing of the opinion against reality—would have to show.

571 The effective executive, therefore, asks: "What do we have to know to test the validity of this hypothesis?"

572 "What would the facts have to be to make this opinion tenable?"

573 And he makes it a habit—in himself and in the people with whom he works—to think through and spell out what needs to be looked at, studied, and tested.

574 He insists that people who voice an opinion also take responsibility for defining what factual findings can be expected and should be looked for.

575 Perhaps the crucial question here is: "What is the criterion of relevance?"

576 This, more often than not, turns on the measurement appropriate to the matter under discussion and to the decision to be reached.

577 Whenever one analyzes the way a truly effective, a truly right, decision has been reached, one finds that a great deal of work and thought went into finding the appropriate measurement. ‟

578 ➤ This, of course, is what made Theodore Vail's conclusion that service was the business of the Bell System such an effective decision. ‴

579 The effective decision-maker assumes that the traditional measurement is not the right measurement.

580 Otherwise, there would generally be no need for a decision; a simple adjustment would do.

581 The traditional measurement reflects yesterday's decision.

582 That there is need for a new one normally indicates that the measurement is no longer relevant.

583 [McNamara example]

584 ➤ That the procurement and inventory policies of the U.S. armed services were in bad shape had been known ever since the Korean War.

585 There had been countless studies—but things got worse, rather than better.

586 When Robert McNamara was appointed Secretary of Defense by President Kennedy, however, he challenged the traditional measurements of military inventory—measurements in total dollars and in total number of items in procurement and inventory.

587 Instead, Mr. McNamara identified and separated the very few items—maybe 4 per cent of the items by number—which together account for 90 per cent or more of the total procurement dollars.

588 He similarly identified the very few items—perhaps again 4 per cent—which account for 90 per cent of combat readiness.

589 Since some items belong in both categories, the list of crucial items came to 5 or 6 per cent of the total, whether measured by number or by dollars.

590 Each of these, McNamara insisted, had to be managed separately and with attention to minute detail.

591 The rest, the 95 per cent or so of all items which account neither for the bulk of the dollars nor for essential combat readiness, he changed to management by exception, that is, to management by probability and averages.

592 The new measurement immediately made possible highly effective decisions on procurement and inventory-keeping and on logistics.

593 [Go Out and Look for the "Feedback" Discussed Earlier]

594 The best way to find the appropriate measurement is again to go out and look for the "feedback" discussed earlier—only this is "feedback" before the decision.

595 ➤ In most personnel matters, for instance, events are measured in "averages," such as the average number of lost-time accidents per hundred employees, the average percentage of absenteeism in the whole work force, or the average illness rate per hundred.

596 But the executive who goes out and looks for himself will soon find that he needs a different measurement.

597 The averages serve the purposes of the insurance company, but they are meaningless, indeed misleading, for personnel management decisions.

598 The great majority of all accidents occur in one or two places in the plant.

599 The great bulk of absenteeism is in one department.

600 Even illness resulting in absence from work, we now know, is not distributed as an average, but is concentrated in a very small part of the work force, e. g., young unmarried women.

601 The personnel actions to which dependence on the averages will lead—for instance, the typical plant-wide safety campaign—will not produce the desired results, may indeed make things worse.

602 Similarly, failure to go and look was a major factor in the failure of the automobile industry to realize in time the need for safety engineering of the car.

603 The automobile companies measured only by the conventional averages of number of accidents per passenger mile or per car.

604 Had they gone out and looked, they would have seen the need to measure also the severity of bodily injuries resulting from accidents.

605 And this would soon have highlighted the need to supplement their safety campaigns by measures aimed at making the accident less dangerous; that is, by automotive design.

606 Finding the appropriate measurement is thus not a mathematical exercise. It is a risk-taking judgment.

607 Whenever one has to judge, one must have alternatives among which one can choose.

608 A judgment in which one can only say “yes” or “no” is no judgment at all.

609 Only if there are alternatives can one hope to get insight into what is truly at stake.

610 Effective executives therefore insist on alternatives of measurement—so that they can choose the one appropriate one.

611 ➤ There are a number of measurements for a proposal on a capital investment.

612 One of these focuses on the length of time it will take before the original investment has been earned back.

613 Another one focuses on the rate of profitability expected from the investment.

614 A third one focuses on the present value of the returns expected to result from the investment, and so on.

615 The effective executive will not be content with any one of these conventional yardsticks, no matter how fervently his accounting department assures him that only one of them is "scientific."

616 He knows, if only from experience, that each of these analyzes brings out a different aspect of the same capital investment decision.

617 Until he has looked at each possible dimension of the decision, he cannot really know which of these ways of analyzing and measuring is appropriate to the specific capital decision before him.

618 Much as it annoys the accountants, the effective executive will insist on having the same investment decision calculated in all three ways—so as to be able to say at the end: "This measurement is appropriate to this decision."

619 Unless one has considered alternatives, one has a closed mind.

620 [Create Dissension and Disagreement, Rather Than Consensus]

621 This, above all, explains why effective decision-makers deliberately disregard the second major command of the textbooks on decision-making and create dissension and disagreement, rather than consensus. ...

622 Decisions of the kind the executive has to make are not made well by acclamation.

623 They are made well only if based on the clash of conflicting views, the dialogue between different points of view, the choice between different judgments.

624 The first rule in decision-making is that one does not make a decision unless there is disagreement.

625 ➤ Alfred P. Sloan is reported to have said at a meeting of one of his top committees: "Gentlemen, I take it we are all in complete agreement on the decision here."

626 Everyone around the table nodded assent.

627 "Then," continued Mr. Sloan, "I propose we postpone further discussion of this matter until our next meeting to give ourselves time to develop disagreement and perhaps gain some understanding of what the decision is all about." ⁂

628 Sloan was anything but an "intuitive" decision-maker.

629 He always emphasized the need to test opinions against facts and the need to make absolutely sure that one did not start out with the conclusion and then look for the facts that would support it.

630 But he knew that the right decision demands adequate disagreement.

631 Every one of the effective Presidents in American history had his own method of producing the disagreement he needed in order to make an effective decision.

632 Lincoln, Theodore Roosevelt, Franklin D. Roosevelt, Harry Truman—each had his own ways.

633 But each created the disagreement he needed for "some understanding of what the decision is all about."

634 Washington, we know, hated conflicts and quarrels and wanted a united Cabinet.

635 Yet he made quite sure of the necessary differences of opinion on important matters by asking both Hamilton and Jefferson for their opinions. ⁂

636 ➤ The President who understood best the need for organized disagreement was probably Franklin D. Roosevelt.

637 Whenever anything of importance came up, he would take aside one of his aides and say to him, "I want you to work on this for me—but keep it a secret."

638 (This made sure, as Roosevelt knew perfectly well, that everybody in Washington heard about it immediately.)

639 Then Roosevelt would take aside a few other men, known to differ from the first and would give them the same assignment, again "in the strictest confidence."

640 As a result, he could be reasonably certain that all important aspects of every matter were being thought through and presented to him.

641 He could be certain that he would not become the prisoner of somebody's preconceived conclusions. ...

642 This practice was severely criticized as execrable administration by the one "professional manager" in Roosevelt's Cabinet, his secretary of the Interior, Harold Ickes, whose diaries are full of diatribes against the President's "sloppiness," "indiscretions," and "treachery."

643 But Roosevelt knew that the main task of an American President is not administration.

644 It is the making of policy, the making of the right decisions.

645 And these are made best on the basis of "adversary proceedings" to use the term of the lawyers for their method of getting at the true facts in a dispute, and of making sure that all relevant aspects of a case are presented to the court.

646 There are three main reasons for the insistence on disagreement.

647 [Safeguard Against the Decision-Maker's Becoming the Prisoner of the Organization]

648 It is, first, the only safeguard against the decision-maker's becoming the prisoner of the organization.

649 Everybody always wants something from the decision-maker.

650 Everybody is a special pleader, trying—often in perfectly good faith—to obtain the decision he favors.

651 This is true whether the decision-maker is the President of the United States or the most junior engineer working on a design modification. ‟

652 The only way to break out of the prison of special pleading and preconceived notions is to make sure of argued, documented, thought-through disagreements.

653 Second, disagreement alone can provide alternatives to a decision.

654 And a decision without an alternative is a desperate gambler's throw, no matter how carefully thought through it might be.

655 There is always a high possibility that the decision will prove wrong—either because it was wrong to begin with or because a change in circumstances makes it wrong.

656 If one has thought through alternatives during the decision-making process, one has something to fall back on, something that has already been thought through, that has been studied, that is understood.

657 Without such an alternative, one is likely to flounder dismally when reality proves a decision to be inoperative. ‟

658 ➤ In the last chapter, I referred to both the Schlieffen Plan of the German army in 1914 and President Franklin D. Roosevelt's original economic program.

659 Both were disproven by events at the very moment when they should have taken effect. ⎓

660 The German army never recovered.

661 It never formulated another strategic concept.

662 It went from one ill-conceived improvisation to the next.

663 But this was inevitable.

664 For twenty-five years no alternatives to the Schlieffen Plan had been considered by the General Staff.

665 All its skills had gone into working out the details of this master plan.

666 When the plan fell to pieces, no one had an alternative to fall back on.

667 Despite all their careful training in strategic planning, the generals could only improvise; that is, dash off first in one direction and then in another, without any real understanding why they dashed off in the first place. ⎓

668 ➤ Another 1914 event also shows the danger of having no alternative.

669 After the Russians had ordered mobilization, the Tsar had second thoughts.

670 He called in his Chief of Staff and asked him to halt the mobilization.

671 "Your Majesty," the general answered, "this is impossible; there is no plan for calling off the mobilization once it has started."

672 I do not believe that World War I would necessarily have been averted had the Russians been able to stop their military machine at the last moment.

673 But there would have been one last chance for sanity. ⎓

674 ➤ By contrast, President Roosevelt, who, in the months before he took office, had based his whole campaign on the slogan of economic orthodoxy, had a team of able people, the later "Brains Trust," working on an alternative—a radical policy based on the proposals of the old-time "Progressives," and aimed at economic and social reform on a grand scale.

675 When the collapse of the banking system made it clear that economic orthodoxy had become political suicide, Roosevelt had his alternative ready.

676 He therefore had a policy. ⎓

677 Yet without a prepared alternative, Roosevelt was as totally lost as the German General Staff or the Tsar of the Russians.

678 When he assumed the Presidency, Roosevelt was committed to conventional nineteenth-century theory for the international economy.

679 Between his election in November 1932, however, and his taking office the following March, the bottom fell out of the international economy just as much as it had fallen out of the domestic economy.

680 Roosevelt clearly saw this but, without alternatives, he was reduced to impotent improvisation.

681 And even as able and agile a man as President Roosevelt could only grope around in what suddenly had become total fog, could only swing wildly from one extreme to another—as he did when he torpedoed the London Economic Conference—could only become the prisoner of

the economic snake-oil salesmen with their patent nostrums such as dollar devaluation or the remonetization of silver—both totally irrelevant to any of the real problems. ⁂

682 An even clearer example was Roosevelt's plan to "pack" the Supreme Court after his landslide victory in 1936.

683 When this plan ran into strong opposition in a Congress which he thought he controlled completely, Roosevelt had no alternative.

684 As a result, he not only lost his plan for court reform.

685 He lost control of domestic politics—despite his towering popularity and his massive majorities.

686 Above all, disagreement is needed to stimulate the imagination.

687 One does not, to be sure, need imagination to find the right solution to a problem.

688 But then this is of value only in mathematics.

689 In all matters of true uncertainty such as the executive deals with—whether his sphere is political, economic, social, or military—one needs "creative" solutions which create a new situation.

690 And this means that one needs imagination—a new and different way of perceiving and understanding. ⁂

691 Imagination of the first order is, I admit, not in abundant supply.

692 But neither is it as scarce as is commonly believed.

693 Imagination needs to be challenged and stimulated, however, or else it remains latent and unused.

694 Disagreement, especially if forced to be reasoned, thought through, documented, is the most effective stimulus we know. ...

695 ➤ Few people have Humpty-Dumpty's ability to imagine a great many impossible things before breakfast.

696 And still fewer have the imagination of Humpty-Dumpty's creator, Lewis Carroll, the author of Alice in Wonderland.

697 But even very small children have the imagination to enjoy Alice.

698 And as Jerome S. Bruner points out, even an eight-year-old sees in a flash that while "4 x 6 equals 6 x 4, 'a blind Venetian' isn't the same thing as 'a Venetian blind.' *[1]

699 This is imaginative sight of a high order.

700 Far too many adult decisions are made on the assumption that a "blind Venetian" must indeed be the same as a "Venetian blind." ...

701 An old story tells of a South Sea Islander of Victorian times who, after his return from a visit to the West, told his fellow islanders that the Westerners had no water in their houses and buildings.

702 On his native island water flowed through hollowed logs and was clearly visible.

703 In the Western city it was conducted in pipes and, therefore, flowed only when someone turned a tap.

704 But no one had explained the tap to the visitor. ...

705 Whenever I hear this story, I think of imagination.

706 Unless we turn the "tap," imagination will not flow.

707 The tap is argued, disciplined disagreement.

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709 [1] * See his perceptive book, Toward a Theory of Instruction (Cambridge, Harvard, 1966), p. 64

710 The effective decision-maker, therefore, organizes disagreement.

711 This protects him against being taken in by the plausible but false or incomplete.

712 It gives him the alternatives so that he can choose and make a decision, but also so that he is not lost in the fog when his decision proves deficient or wrong in execution.

713 And it forces the imagination—his own and that of his associates.

714 Disagreement converts the plausible into the light and the right into the good decision. ⁂

715 The effective decision-maker does not start out with the assumption that one proposed course of action is right and that all others must be wrong.

716 Nor does he start out with the assumption, "I am right and he is wrong."

717 He starts out with the commitment to find out why people disagree. ⁂

718 Effective executives know, of course, that there are fools around and that there are mischief-makers.

719 But they do not assume that the man who disagrees with what they themselves see as clear and obvious is, therefore, either a fool or a knave.

720 They know that unless proven otherwise, the dissenter has to be assumed to be reasonably intelligent and reasonably fair-minded.

721 Therefore, it has to be assumed that he has reached his so obviously wrong conclusion because he sees a different reality and is concerned with a different problem.

722 The effective executive, therefore, always asks: "What does this fellow have to see if his position were, after all, tenable, rational, intelligent?"

723 The effective executive is concerned first with understanding.

724 Only then does he even think about who is right and who is wrong.*[1] ...

725 ➤ In a good law office, the beginner, fresh out of law school, is first assigned to drafting the strongest possible case for the other lawyer's client.

726 This is not only the intelligent thing to do before one sits down to work out the case for one's own client.

727 (One has to assume, after all, that the opposition's lawyer knows his business too.)

728 It is also the right training for a young lawyer, It trains him not to start out with, "I know why my case is right," but with thinking through what it is that the other side must know, see, or take as probable to believe that it has a case at all.

729 It tells him to see the two cases as alternatives.

730 And only then is he likely to understand what his own case is all about.

731 Only then can he make out a strong case in court that his alternative is to be preferred over that of the other side. ...

732 Needless to say, this is not done by a great many people, whether executives or not.

733 Most people start out with the certainty that what they see is the only way to see at all. ⎓

734 ➤ The American steel executives have never missed the question: "Why do these union people get so terribly exercised every time we mention the word 'featherbedding'?"

735 The union people in turn have never asked themselves why steel managements make such a fuss over featherbedding when every single instance thereof they have ever produced has proved to be petty, and irrelevant to boot.

736 Instead, both sides have worked mightily to prove each other wrong.

737 If either side had tried to understand what the other one sees and why, both would be a great deal stronger, and labor relations in the steel industry, if not in U.S. industry, would be a good deal better and healthier. ⎓

738 No matter how high his emotions run, no matter how certain he is that the other side is completely wrong and has no case at all, the executive who wants to make the right decision forces himself to see opposition as his means to think through the alternatives.

739 He uses conflict of opinion as his tool to make sure all major aspects of an important matter, are looked at carefully.

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741 [1] * This, of course, is nothing new. It is indeed only, a rephrasing of Mary Parker Follet (see her Dynamic Administration, ed. by Henry C. Metcalf and L. Urwick [New York, Harper & Row, 1942]), who in turn only extended Plato's arguments in his great dialogue on rhetoric, the Phaedrus.

742 There is one final question the effective decision-maker asks: "Is a decision really necessary?"

743 One alternative is always the alternative of doing nothing.

744 Every decision is like surgery.

745 It is an intervention into a system and therefore carries with it the risk of shock.

746 One does not make unnecessary decisions any more than a good surgeon does unnecessary surgery.

747 Individual decision-makers, like individual surgeons, differ in their styles.

748 Some are more radical or more conservative than others.

749 But by and large, they agree on the rules.

750 One has to make a decision when a condition is likely to degenerate if nothing is done.

751 This also applies with respect to opportunity.

752 If the opportunity is important and is likely to vanish unless one acts with dispatch, one acts—and one makes a radical change.

753 ➤ Theodore Vail's contemporaries agreed with him as to the degenerative danger of government ownership:

754 But they wanted to fight it by fighting symptoms—fighting this or that bill in the legislature, opposing this or that candidate and supporting another, and so on.

755 Vail alone understood that this is the ineffectual way to fight a degenerative condition.

756 Even if one wins every battle, one can never win the war.

757 He saw that drastic action was needed to create a new situation.

758 He alone saw that private business had to make public regulation into an effective alternative to nationalization.

759 At the opposite end there are those conditions in respect to which one can, without being unduly optimistic, expect that they will take care of themselves even if nothing is done.

760 If the answer to the question "What will happen if we do nothing?" is "It will take care of itself," one does not interfere.

761 Nor does one interfere if the condition, while annoying, is of no importance and unlikely to make any difference anyhow. ▪▪

762 ➤ It is a rare executive who understands this.

763 The controller who in a desperate financial crisis preaches cost reduction is seldom capable of leaving alone minor blemishes, elimination of which will achieve nothing.

764 He may know, for instance, that the significant costs that are out of control are in the sales organization and in physical distribution.

765 And he will work hard and brilliantly at getting them under control.

766 But then he will discredit himself and the whole effort by making a big fuss about the "unnecessary" employment of two or three old employees in an otherwise efficient and well-run plant.

767 And he will dismiss as immoral the argument that eliminating these few semipensioners will not make any difference anyhow.

768 "Other people are making sacrifices," he will argue, "Why should the plant people get away with inefficiency?"

769 When it is all over, the organization will forget fast that he saved the business.

770 They will remember, though, his vendetta against the two or three poor devils in the plant—and rightly so.

771 "De minimis non curat praetor" [The magistrate does, not consider trifles] said the Roman law almost two thousand years ago—but many decision-makers still need to learn it.

772 The great majority of decisions will lie between these extremes.

773 The problem is not going to take care of itself; but it is unlikely to turn into degenerative malignancy either.

774 The opportunity is only for improvement rather than for real change and innovation; but it is still quite considerable.

775 If we do not act, in other words, we will in all probability survive.

776 But if we do act, we may be better off. ...

777 In this situation the effective decision-maker compares effort and risk of action to risk of inaction.

778 There is no formula for the right decision here.

779 But the guidelines are so clear that decision in the concrete case is rarely difficult.

780 They are:

781 - Act if on balance the benefits greatly outweigh cost and risk; and

782 - Act or do not act; but do not "hedge" or compromise.

783 The surgeon who only takes out half the tonsils or half the appendix risks as much infection or shock as if he did the whole job.

784 And he has not cured the condition, has indeed made it worse.

785 He either operates or he doesn't.

786 Similarly, the effective decision-maker either acts or he doesn't act.

787 He does not take half-action.

788 This is the one thing that is always wrong, and the one sure way not to satisfy the minimum specifications, the minimum boundary conditions.

789 The decision is now ready to be made.

790 The specifications have been thought through, the alternatives explored, the risks and gains weighed.

791 Everything is known.

792 Indeed, it is always reasonably clear by now what course of action must be taken.

793 At this point the decision does indeed almost "make itself."

794 And it is at this point that most decisions are lost.

795 It becomes suddenly quite obvious that the decision is not going to be pleasant, is not going to be popular, is not going to be easy.

796 It becomes clear that a decision requires courage as much as it requires judgment.

797 There is no inherent reason why medicines should taste horrible—but effective ones usually do.

798 Similarly, there is no inherent reason why decisions should be distasteful—but most effective ones are.

799 One thing the effective executive will not do at this point.

800 He will not give in to the cry, "Let's make another study."

801 This is the coward's way—and all the coward achieves is to die a thousand deaths where the brave man dies but one.

802 When confronted with the demand for "another study" the effective executive asks:

803 "Is there any reason to believe that additional study will produce anything new?

804 And is there reason to believe that the new is likely to be relevant?"

805 And if the answer is "no"—as it usually is—the effective executive does not permit another study.

806 He does not waste the time of good people to cover up his own indecision.

807 But at the same time he will not rush into a decision unless he is sure he understands it.

808 Like any reasonably experienced adult, he has learned to pay attention to what Socrates called his "daemon": the inner voice, somewhere in the bowels, that whispers, "Take care."

809 Just because something is difficult, disagreeable, or frightening is no reason for not doing it if it is right.

810 But one holds back—if only for a moment—if one finds oneself uneasy, perturbed, bothered without quite knowing why.

811 "I always stop when things seem out of focus," is the way one of the best decision-makers of my acquaintance puts it. ...

812 Nine times out of ten the uneasiness turns out to be over some silly detail.

813 But the tenth time one suddenly realizes that one has overlooked the most important fact in the problem, has

made an elementary blunder, or has misjudged altogether.

814 The tenth time one suddenly wakes up at night and realizes—as Sherlock Holmes did in the famous story—that the "most significant thing is that the hound of Baskerville didn't bark." ⎓

815 But the effective decision-maker does not wait long—a few days, at the most a few weeks.

816 If the "daemon" has not spoken by then, he acts with speed and energy whether he likes to or not. ⎓

817 Executives are not paid for doing things they like to do.

818 They are paid for getting the right things done—most of all in their specific task, the making of effective decisions.

819 *Decision-Making And The Computer*

820 Does all this still apply today when we have the computer?

821 The computer, we are being told, will replace the decision-maker, at least in middle management.

822 It will make, in a few years, all the operating decisions—and fairly soon thereafter it will take over the strategic decisions too.

823 Actually the computer will force executives to make, as true decisions, what are today mostly made as on-the-spot adaptations.

824 It will convert a great many people who traditionally have reacted rather than acted into genuine executives and decision-makers.

825 The computer is a potent tool of the executive.

826 Like hammer or pliers—but unlike wheel or saw—it cannot do anything man cannot do.

827 But it can do one human job—addition and subtraction—infinitely faster than man can do it.

828 And, being a tool, it does not get bored, does not get tired, does not charge overtime.

829 Like all tools that do better something man can do, the computer multiplies man's capacity (the other tools, such as the wheel, the airplane, or the television set that do something man cannot do at all, add a new dimension to man, i. e., extend his nature).

830 But like all tools the computer can only do one or two things.

831 It has narrow limitations.

832 And it is the limitations of the computer that will force us to do as genuine decision what now is largely done as ad hoc adaptation. „

833 The strength of the computer lies in its being a logic machine.

834 It does precisely what it is programed to do.

835 This makes it fast and precise.

836 It also makes it a total moron; for logic is essentially stupid.

837 It is doing the simple and obvious.

838 The human being, by contrast, is not logical; he is perceptual.

839 This means that he is slow and sloppy.

840 But he is also bright and has insight.

841 The human being can adapt; that is, he can infer from scanty information or from no information at all what the total picture might be like.

842 He can remember a great many things nobody has programed.

843 ➤ A simple and a common area where the typical traditional manager acts by way of on-the-spot adaptation is the commonplace inventory and shipping decision.

844 The typical district sales manager knows, albeit most inaccurately, that customer A usually runs his plant on a tight schedule and would be in real trouble if a promised delivery did not arrive on time.

845 He knows also that customer B usually has adequate inventories of materials and supplies and can presumably manage to get by for a few days even if a delivery were late.

846 He knows that customer C is already annoyed at his company and is only waiting for a pretext to shift his purchases to another supplier.

847 He knows that he can get additional supplies of one item by asking for them as a special favor from this or that man in the plant back home, and so on.

848 And on the basis of these experiences, the typical district sales manager adapts and adjusts as he goes along.

849 The computer knows none of these things.

850 At least it does not know them unless it has been specifically told that these are the facts that determine company policy toward consumer A or in respect to product B.

851 All it can do is react the way it has been instructed and programed.

852 It no more makes “decisions” than the slide rule or the cash register.

853 All it can do is compute.

854 The moment a company tries to put inventory control on the computer, it realizes that it has to develop rules.

855 It has to develop an inventory policy.

856 As soon as it tackles this, it finds that the basic decisions in respect to inventory are not inventory decisions at all.

857 They are highly risky business decisions.

858 Inventory emerges as a means of balancing different risks: the risk of disappointing customer expectations in respect to delivery and service; the risk and cost of turbulence and instability in manufacturing schedules; and the risk and cost of locking up money in merchandise which might spoil, become obsolete, or otherwise deteriorate. ‟

859 ➤ The traditional clichés do not greatly help.

860 “It is our aim to give 90 per cent of our customers 90 per cent fulfillment of delivery promises” sounds precise.

861 It is actually meaningless, as one finds out when one tries to convert it into the step-by-step moron logic of the computer.

862 Does it mean that all our customers are expected to get nine out of ten orders when we promised them?

863 Does it mean that our really good customers should get fulfillment all the time on all their orders—and how do we define a “really good customer” anyhow?

864 Does it mean that we aim to give fulfillment of these promises on all our products? or only on the major ones which together account for the bulk of our production?

865 And what policy, if any, do we have with respect to the many hundreds of products which are not major for us, though they might well be major for the customer who orders one of them? ...

866 Each of these questions requires a risk-taking decision and, above all, a decision on principle.

867 Until all these decisions have been made, the computer cannot control inventory.

868 They are decisions of uncertainty—and what is relevant to them could not even be defined clearly enough to be conveyed to the computer. ...

869 To the extent, therefore, to which the computer—or any similar tool—is expected to keep operations on an even keel or to carry out predetermined reactions to expected events (whether the appearance of hostile nuclear missiles on the far horizon or the appearance of a crude oil with an unusual sulfur content in the petroleum refinery) the decision has to be anticipated and thought through.

870 It can no longer be improvised.

871 It can no longer be groped for in a series of small adaptations, each specific, each approximate, each, to use the physicist's terminology, a "virtual" rather than a real decision.

872 It has to be a decision in principle.

873 ➤ The computer is not the cause of this.

874 The computer, being a tool, is probably not the cause of anything.

875 It only brings out in sharp relief what has been happening all along.

876 For this shift from the small adaptation to the decision in principle has been going on for a long time.

877 It became particularly apparent during World War II and after, in the military.

878 Precisely because military operations became so large and interdependent, requiring, for instance, logistics systems embracing whole theaters of operations and all branches of the armed services, middle-level commanders increasingly had to know the framework of strategic decisions within which they were operating.

879 They increasingly had to make real decisions, rather than adapt their orders to local events.

880 The second-level generals who emerged as the great men of World War II—a Rommel, a Bradley, a Zhukov—were all "middle managers" who thought through genuine decisions, rather than the dashing cavalry generals, the "beaux sabreurs" of earlier wars.

881 As a result, decision-making can no longer be confined to the very small group at the top.

882 In one way or another almost every knowledge worker in an organization will either have to become a decision-maker himself or will at least have to be able to play an active, an intelligent, and an autonomous part in the decision-making process.

883 What in the past had been a highly specialized function, discharged by a small and usually clearly defined organ—with the rest adapting within a mold of custom and usage—is rapidly becoming a normal if not an everyday task of every single unit in this new social institution, the large-scale knowledge organization.

884 The ability to make effective decisions increasingly determines the ability of every knowledge worker, at least of those in responsible positions, to be effective altogether.

885 ➤ A good example of the shift to decision which the new techniques impose on us is the much discussed PERT (Program Evaluation and Review Technique) which aims at providing a road map for the critical tasks in a highly complex program such as the development and construction of a new space vehicle.

886 PERT aims at giving control of such a program by advance planning of each part of the work, of its sequence, and of the deadlines each part has to meet for the whole program to be ready on time.

887 This sharply curtails ad hoc adaptation.

888 In its place there are high-risk decisions.

889 The first few times operating men have to work out a PERT schedule, they are invariably wrong in almost every one of their judgments.

890 They are still trying to do, through ad hoc adaptations, what can only be done through systematic risk-taking decision-making.

891 The computer has the same impact on strategic decisions.

892 It cannot make them, of course.

893 All it can do—and even that is potential rather than actual so far—is to work through what conclusions follow from certain assumptions made regarding an uncertain future, or conversely, what assumptions underlie certain proposed courses of action.

894 Again, all it can do is compute.

895 For this reason it demands clear analysis, especially of the boundary conditions the decision has to satisfy.

896 And that requires risk-taking judgment of a high order.

897 There are additional implications of the computer for decision-making.

898 If properly used, for instance, it should free senior executives from much of the preoccupation with events inside the organization to which they are now being condemned by the absence or tardiness of reliable information.

899 It should make it much easier for the executive to go and look for himself on the outside; that is, in the area where alone an organization can have results.

900 The computer might also change one of the typical mistakes in decision-making.

901 Traditionally we have tended to err toward treating generic situations as a series of unique events.

902 Traditionally we have tended to doctor symptoms.

903 The computer, however, can only handle generic situations—this is all logic is ever concerned with.

904 Hence we may well in the future tend to err by handling the exceptional, the unique, as if it were a symptom of the generic. [111]

905 ➤ This tendency underlies the complaints that we are trying to substitute the computer for the proven and tested judgment of the military man.

906 This should not be lightly dismissed as the grumbling of brass-hats.

907 The most cogent attack on the attempt to standardize military decisions was made by an outstanding civilian "management scientist," Sir Solly Zuckerman, the eminent British biologist, who as scientific adviser to the British Ministry of Defense has played a leading part in the development of computer analysis and operations research.

908 The greatest impact of the computer lies in its limitations, which will force us increasingly to make decisions, and

above all, force middle managers to change from operators into executives and decision-makers. ⁂

909 This should have happened anyhow.

910 One of the great strengths of such organizations as, for instance, General Motors among business firms, or the German General Staff among military groups, was precisely that these organizations long ago organized operating events as true decisions. ⁂

911 The sooner operating managers learn to make decisions as genuine judgments on risk and uncertainty, the sooner we will overcome one of the basic weaknesses of large organization—the absence of any training and testing for the decision-making top positions.

912 As long as we can handle the events on the operating level by adaptation rather than by thinking, by "feel" rather than by knowledge and analysis, operating people—in government, in the military, or in business—will be untrained, untried, and untested when, as top executives, they are first confronted with strategic decisions.

913 The computer will, of course, no more make decision-makers out of clerks than the slide rule makes a mathematician out of a high school student.

914 But the computer will force us to make an early distinction between the clerk and the potential decision-maker.

915 And it will permit the latter—may indeed force him—to learn purposeful, effective decision-making.

916 For unless someone does this, and does it well, the computer cannot compute. ⁂

917 There is indeed ample reason why the appearance of the computer has sparked interest in decision-making.

918 But the reason is not that the computer will “take over” the decision.

919 The reason is that with the computer’s taking over computation, people all the way down the line in the organization will have to learn to be executives and to make effective decisions.