Lesson Five

Management as a Science versus Management as an Art
Management as a science versus management as an art

One of the enduring questions in the field of management is whether it is an art or a science. Webster's College Dictionary defines an art as "skill in conducting any human activity" and science as "any skill or technique that reflects a precise application of facts or a principle." Reflected in the differences in these definitions is the use of precision in science, in that there is a particular, prescribed way in which a manager should act.

Thus, management as a science would indicate that in practice, managers use a specific body of information and facts to guide their behaviors, but that management as an art requires no specific body of knowledge, only skill.

Conversely, those who believe management is an art are likely to believe that there is no specific way to teach or understand management, and that it is a skill borne of personality and ability. Those who believe in management as an art are likely to believe that certain people are more predisposed to be effective managers than are others, and that some people cannot be taught to be effective managers. That is, even with an understanding of management research and an education in management, some people will not be capable of being effective practicing managers.

The field of management has long been marked by a conflict between two competing views of professional knowledge. On the first view, the manager is a technician whose practice consists of applying to the everyday problems of the organisation the principles and methods derived from management science. On the second, the manager is a craftsman, a practitioner of an art of managing that cannot be reduced to explicit rules and theories. The first view dates from the early decades of the twentieth century when the idea of professional management first came into good currency. The second has an even longer history, management having been understood as an art, a matter of skill and wisdom, long before it began to be understood as a body of techniques. But the first view has gained steadily in power.
FOUNDATIONS OF THE MANAGEMENT AS A SCIENCE
PERSPECTIVE

Practicing managers who believe in management as a science are likely to believe that there are ideal managerial practices for certain situations. That is, when faced with a managerial dilemma, the manager who believes in the scientific foundation of his or her craft will expect that there is a rational and objective way to determine the correct course of action. This manager is likely to follow general principles and theories and also by creating and testing hypotheses. For instance, if a manager has a problem with an employee's poor work performance, the manager will look to specific means of performance improvement, expecting that certain principles will work in most situations. He or she may rely on concepts learned in business school or through a company training program when determining a course of action, perhaps paying less attention to political and social factors involved in the situation.

Many early management researchers subscribed to the vision of managers as scientists. The scientific management movement was the primary driver of this perspective. Scientific management, pioneered by Frederick W. Taylor, Frank and Lillian Gilbreth, and others, attempted to discover "the one best way" to perform jobs. They used scientific processes to evaluate and organize work so that it became more efficient and effective. Scientific management's emphasis on both reducing inefficiencies and on understanding the psychology of workers changed manager and employee attitudes towards the practice of management. See Exhibit 1 for a summary of the principles of scientific management.

The idea of management science, and the complementary idea of the manager as a technician, has been carried by a social movement which has spread out from its centre in the United States to encompass the whole of the industrialised world. The origins of this movement are difficult to identify, but a critically important milestone in its development was the work of Frederick Taylor who, in the 1920s, conceived of management as a form of human engineering based on a science of work. While Taylor may not have invented these ideas, he was certainly the first to embody them in a practice of industrial management and consultation, and he popularised them in a way
that has had enormous influence in industry, in business, and in the administration of public agencies.

Taylor treated work as a man/machine process which could be decomposed into measurable units of activity. Every industrial process, from the shovelling of coal to the processing of steel, could be subjected to experimental analysis. The design of tools, the bodily movements of the worker, and the sequencing of production steps, could be combined in an optimum configuration, a ‘one best way.’ Taylor saw the industrial manager as a designer of work, a controller and monitor of performance, and a distributor of rewards and punishments carefully selected and applied so as to yield optimally efficient production. Above all, he saw the manager as an on-line experimenter, a scientist in action, whose practice would consist in the trial and measurement of designs and methods aimed at the discovery and implementation of the one best way.

Taylor’s views were not unique. Thorstein Veblen, to take one extraordinary example, also perceived that industry had taken on the characteristics of an organisational machine within which managers of the business enterprise must be increasingly concerned with standards, measures of performance, and the articulation of interlocking activities. But it was Taylor who embodied these ideas in practice, and it was Taylor’s version of the practice of industrial engineering, efficiency expertise, and time and motion study which has evolved into the management science of the present day.

World War II gave an enormous impetus to the management science movement, first, because of the general rise in prestige of science and technology, and second, because of the birth of operations research and systems theory. These disciplines, which grew out of the use of applied mathematics to solve problems of submarine search and bomb tracking, were later exported to industry, commerce, and government. In the wake of World War II, management science grew to maturity. Teachers and researchers in the new schools of management, in partnerships with managers in public and private sectors, have engendered a plethora of new techniques. There is no field of management which has been immune to the incursions of management science. What was once true only of industrial production has now become true of sales, personnel selection
and training, budgeting and financial control, marketing, business policy, and strategic planning. Technical panaceas have appeared on the scene with clocklike regularity, old ones making way for new. Value analysis, management by objectives, planning, programming and budgeting, and zero-based budgeting are only a few of the better-known examples. Even the human relations movement, which had originated as a reaction against Taylorism, has tended increasingly to present itself as a body of techniques.

Yet in spite of the increasingly powerful status of management science and technique, managers have remained persistently aware of important areas of practice which fall outside the bounds of technical rationality.

Managers have become increasingly sensitive to the phenomena of uncertainty, change, and uniqueness. In the last 20 years, ‘decision under uncertainty’ has become a term of art. It has become commonplace for managers to speak of the ‘turbulent’ environments in which problems do not lend themselves to the techniques of benefit-cost analysis or to probabilistic reasoning. At least at the level of espoused theory, managers have become used to the instability of patterns of competition, economic context, consumer interests, sources of raw materials, attitudes of the labour force, and regulatory climate. And managers have become acutely aware that they are often confronted with unique situations to which they must respond under conditions of stress and limited time which leave no room for extended calculation or analysis. Here they tend to speak not of technique but of intuition.

Quite apart from these exceptions to the day-to-day routine of management practice, managers have remained aware of a dimension of ordinary professional work, crucially important to effective performance, which cannot be reduced to technique. Indeed, they are sometimes aware that even management technique rests on a foundation of nonrational, intuitive artistry.

More recently a Canadian professor of management, Henry Mintberzg has caused a considerable stir with studies of the actual behaviour of top managers that reveal a virtual absence of the methods that managers are ‘supposed to’ use. In some of the most prestigious schools
management, where the curriculum depends on cases drawn from the actual experience of business firms, there is a widely held belief that managers learn to be effective not primarily through the study of theory and technique but through long and varied practice in the analysis of business problems, which builds up a generic, essentially unanalysable capacity for problem-solving.

It is no exaggeration, then, to say that the field of management is split into two camps, each of which holds a different view of the nature of professional knowledge. At the same time that management science and technique have grown increasingly in power and prestige, there has been a persistent and growing awareness of the importance of an art of managing which reveals itself in both crucially important situations of uncertainty, instability, and uniqueness, and in those dimensions of everyday practice which depend upon the spontaneous exercise of intuitive artistry. One sign of this split is that in some schools of management, representatives of the two tendencies – the professors of management science and the practitioners of case-method – no longer speak to one another. The representatives of each school of thought go about their business as though the other school of thought did not exist.

But a split of this kind, which is barely tolerable in a professional school, creates for thoughtful students and practitioners a particularly painful variant of the dilemma of ‘rigour or relevance.’ For if rigorous management means the application of management science and technique, then ‘rigorous managers’ must be selectively inattentive to the art which they brings to much of their day-to-day practice, and they must avoid situations – often the most important in organisational life – where they would find themselves confronted with uncertainty, instability, or uniqueness.

But if the art of managing can be described, at least in part, and can be shown to be rigorous in a way peculiar to itself, then the dilemma of rigor or relevance need not be so painful. Indeed, it may be possible to bring the art of managing into dialogue with management science.
FOUNDATIONS OF THE MANAGEMENT AS AN ART PERSPECTIVE

Practicing managers who believe in management as an art are unlikely to believe that scientific principles and theories will be able to be implemented in actual managerial situations. Instead, these managers are likely to rely on the social and political environment surrounding the managerial issue, using their own knowledge of a situation, rather than generic rules, to determine a course of action. For example, as a contrast to the example given previously, a manager who has a problem with an employee's poor work performance is likely to rely on his or her own experiences and judgment when addressing this issue. Rather than having a standard response to such a problem, this manager is likely to consider a broad range of social and political factors, and is likely to take different actions depending on the context of the problem.

- **Henry Mintzberg is probably the most well-known and prominent advocate of the school of thought that management is an art.** Mintzberg is an academic researcher whose work capturing the actual daily tasks of real managers was ground breaking research for its time. Mintzberg, through his observation of actual managers in their daily work, determined that managers did not sit at their desks, thinking, evaluating, and deciding all day long, working for long, uninterrupted time periods. Rather, Mintzberg determined that managers engaged in very fragmented work, with constant interruptions and rare opportunities to quietly consider managerial issues. Thus, Mintzberg revolutionized thinking about managers at the time that his work was published, challenging the prior notion that managers behaved rationally and methodically. This was in line with the perspective of management as an art, because it indicated that managers did not necessarily have routine behaviors throughout their days, but instead used their own social and political skills to solve problems that arose throughout the course of work.

- Another scholar that promoted the notion of management as an art was David E. Lilienthal, who in 1967 had his series of lectures titled Management: A Humanist Art published. In this set of published lectures, Lilienthal argues that management requires more than a mastery of techniques and skills; instead, it also requires that managers understand individuals and their motivations and help them achieve their goals. Lilienthal
believed that combining management and leadership into practice, by not only getting work done but understanding the meaning behind the work, as effective managerial behavior. Thus, he promoted the idea of the manager as a motivator and facilitator of others. This manager as an artist was likely to respond differently to each employee and situation, rather than use a prescribed set of responses dictated by set of known guidelines.

- Another proponent of the management as art school of thought is Peter Drucker, famed management scholar who is best known for developing ideas related to total quality management. Drucker terms management "a liberal art," claiming that it is such because it deals with the fundamentals of knowledge, wisdom, and leadership, but because it is also concerned with practice and application. Drucker argues that the discipline (i.e., the science) of management attempts to create a paradigm for managers, in which facts are established, and exceptions to these facts are ignored as anomalies. He is critical of the assumptions that make up the management paradigm, because these assumptions change over time as society and the business environment change. Thus, management is more of an art, because scientific "facts" do not remain stable over time.

In management as in other fields, ‘art’ has a twofold meaning. It may mean intuitive judgement and skill, the feeling for phenomena and for action that I have called knowing-in-practice. But it may also designate a manager’s reflection, in a context of action, on phenomena which are perceived as incongruent with intuitive understandings.

Managers do reflect-in-action. Sometimes, when reflection is triggered by uncertainty, the manager says, in effect, ‘This is puzzling; how can I understand it?’ Sometimes, when a sense of opportunity provokes reflection, the manager asks, ‘What can I make of this?’ And sometimes, when managers are surprised by the success of their own intuitive knowing, they ask themselves, ‘What have I really been doing?’

Whatever the triggering condition, a manager’s reflection-in-action is fundamentally similar to reflection-in-action in other professional fields. It consists in on-the-spot surfacing, criticising,
restructuring, and testing of intuitive understanding of experienced phenomena; often, it takes the form of a reflective conversation with the situation. A manager’s reflection-in-action also has special features of its own. A manager’s professional life is wholly concerned with an organisation which is both the stage for his or her activity and the object of his or her inquiry. Hence, the phenomena on which a manager reflects-in-action are the phenomena of organisational life. Organisations are repositories of cumulatively built-up knowledge: principles and maxims of practice, images of mission and identity, facts about the task environment, techniques of operation, and stories of past experience which serve as exemplars for future action. When a manager reflects-in-action, he or she draws on this stock of organisational knowledge, adapting it to some present instance. The manager also functions as an agent of organisational learning, extending or restructuring, in the present inquiry, the stock of knowledge which will be available for future inquiry.

Finally, managers live in an organisational system which may promote or inhibit reflection-in-action. Organisational structures are more or less adaptable to new findings, more or less resistant to new tasks. The behavioural world of the organisation, the characteristic pattern of interpersonal relations, is more or less open to reciprocal reflection-in-action – to the surfacing of negative information, the working out of conflicting views, and the public airing of organisational dilemmas. Insofar as organisational structure and behavioural world condition organisational inquiry, they make up what I will call the ‘learning system’ of the organisation. The scope and direction of a manager’s reflection-in-action are strongly influenced, and may be severely limited, by the learning system of the organisation in which they practice.

These distinctively organisational aspects of a manager’s reflection-in-action must enter into any good description of the art of managing.

**End of discussion**