Mintzberg's theory of organization structure: a critical assessment and extension

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Draft version, November 1997

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Mintzberg's (1979) theory of organization structures is one of the most widely influential works in the field of strategic management, yet it has been virtually ignored by academic researchers. In this paper we provide a critical review of the conceptual foundations and empirical status of Mintzberg's theory, and propose a revised version of the theory which overcomes some of the conceptual difficulties of the original and is significantly more amenable to empirical testing.

Mintzberg's (1979) configuration theory of typical organization structures and their associated strategic and organizational processes occupies a curious place in the strategic management literature. One one hand it has a strong claim to being one of the seminal works of strategic management and remains to this day the best known and most influential theory of organization structure. Based on a complex synthesis of contemporary organization research, it has been an enduring inspiration to practitioners and students. Nearly twenty years later the original book and subsequent popularization (Mintzberg, 1983) are still in

print and selling well, and the typology also plays a central role in best selling student texts such as Mintzberg & Quinn (1991, 1996) and Mintzberg, Quinn & Ghoshal (1995).

On the other hand, despite this success, and despite its origins in the academic literature, the theory has been widely disregarded by the academic research community. It is not as though it has ever been falsified, or even seriously criticised: apart from one inconclusive empirical study (Doty, Glick & Huber, 1993) and a handful of parenthetic references it has simply not been mentioned. It is not even cited in a recent review of configuration research (Dess, Newport & Rasheed, 1993).

In a field which purports, as strategic management does, to be guided by practical relevance, a theory as influential as Mintzberg's should in our view be taken seriously, both in a constructive and in a critical sense. Because of the way in which the theory is structured it is not in its current form readily amenable to empirical test. It also has a number of evident flaws, the significance of which has been exacerbated by more recent developments in business practice. These defects can, however, be rectified. In this paper we review the theoretical and empirical foundations of Mintzberg's theory and assess its status (i) as a theory of ideal types and (ii) as a theory of empirically observable configurations. We then address some problems relating to two of the theory's types (the innovative and the multidivisional) and to the evolution of these forms of organization in the period since the theory was first published. On the basis of our analysis we then propose a revised version of the theory, which we specify both as a conceptual model (in line with Mintzberg's original presentation) and as a set of discrete, empirically testable hypotheses.

MINTZBERG'S THEORY AND ITS ORIGINS

Mintzberg's theory provides a theoretical synthesis of a wide range of management and organizational research, the principal components of which are:

- a typology of five structural co-ordinating mechanisms
- a classification of five basic parts of the organization
- a classification of five modes of decentralization
- a contingency relationship between environmental dynamics and organizational organicism (Burns and Stalker, 1961, 1966; Woodward, 1965)
- a contingency relationship between environmental complexity and organizational differentiation or decentralization (Lawrence & Lorsch, 1967a,b)
- a contingency relationship between market diversity and divisionalization (Chandler, 1962)
- a typology of power and authority structures

In his original presentation of the theory Mintzberg (1979) identified five ideal types or configurations of organization structure: entrepreneurial, machine, professional, innovative and diversified. He also mentioned, at the end of the work, the possibility of a sixth type (missionary) and this and a seventh (political) were included in subsequent presentations.

These last two types represent relatively straightforward exceptions to the main theory, however, and will not be considered here.

The five configurations corresponded to five co-ordinating mechanisms, each identified with one of five key parts of the organization, each with its own interests pulling the organization in a particular direction, and with one of five characteristic patterns of decentralization, identified with contingency variables as indicated in Figure 1.

Figure 1

Structural Configuration	*Prime Co-ordinating Mechanism* *Key part of Organization*	*Type of Decentralization*	*Power Structure*	*Strategic Processes*	*Contingencies*
Simple / Entrepreneurial	Direct supervision Strategic apex	Vertical and horizontal dentralization	Autocracy	Deliberate but flexible Visionary leadership Discrete change processes	Young, small Simple, dynamic environment Simple technical system
Machine Bureaucracy	Standardization of work processes Technostructure	Limited horizontal centralization	Bureaucracy with dominant external coalition	Inflexible strategic programming Resistance to change (which requires move to another structure)	Mature, large Simple, stable environment Regulating technical system
Professional Bureaucracy	Standardization of skills Operating core	Vertical and horizontal decentralisation	Individual meritocracy	Collective choice, professional judgement and administrative fiat Incremental change	Complex, stable environment Simple, non-regulating technical system
Diversified / Divisional	Standardization of outputs Middle line	Limited vertical decentralization	Bureaucracy with passive external elements	Portfolio strategies in HQ Divisions as for machine bureaucracy	Diversity of markets Mature, large

Innovative / Adhocracy	Mutual adjustment Support staff	Selective decentralization	Meritocracy of groups	Emergent, bottom-up Cycles of convergence and divergence in focus	Young Complex, dynamic environment Sophisticated technical systems

Source: Mintzberg (1979) with modifications and additions from Mintzberg (1983, 1989)

Typological schemes and contingency relations

The presentation of Mintzberg's synthesis fell into two parts. First he generated a five component typology linking the parts of the organization, the co-ordinating mechanisms and the modes of decentralization (we shall refer to this as the "initial typological schema"). He then used this typological framework to synthesize and make sense of existing research into contingency relationships, presenting each of the five types as a configuration of contingency and design variables (which we shall refer to as the "full typology").

The initial typological schema took the form of a speculative organizing framework which "emerged" from and appeared generally consistent with, but was not rigorously determined by or derived from existing research in the field. Reflecting the concerns of contemporary organization theory with issues of co-ordination and information processing (March and Simon, 1958; Lawrence and Lorsch, 1967b; Galbraith, 1973), the parts of the organization (defining the division of labour within it) and the co-ordinating mechanisms were taken as the defining dimensions of organization structure, but the typologies in terms of which these dimensions were themselves defined received little attention. The five co-ordinating

mechanisms were simply presented as given, with no explanation of how they arose, and no analysis of the identification and distinguishability of types, the relationships between them, or the completeness or otherwise of the typology.[1] The five basic parts of the organization were likewise taken as given, and the implicit assumption that the division of labour in divers organizations could in principle be accommodated within a single classificatory scheme was also not discussed.

Drawing on a survey of the operational, informational, authority and decision flows within the organization, and of the relation of these to a range of structural design parameters, Mintzberg proposed that each co-ordinating mechanism be identified with a key part of the organization, pulling the organization as a whole towards that mode of co-ordination and playing an important role in its implementation. Focusing on one particular design parameter, decentralization, he then identified each combination with a particular type or extent of decentralization.

To derive the full typology, Mintzberg reviewed and synthesized existing research into contingency relationships between organizational structure on one hand and age, size, technical systems, environmental and power characteristics on the other. The synthesis presented was a complex one, embracing many strands of research, but in essence it rested upon three classic works of the 1960s, together with their subsequent elaborations.

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1 A footnote suggested that the typology reflected "in part" the conclusions of Simon (1957), March and Simon (1958) and Galbraith (1973), but the correlation, which appears tenuous, was not spelt out and the empirical basis for these works was itself limited.

The core of the contingency typology was derived from the well-known theories of Burns and Stalker (1966) and Lawrence and Lorsch (1967a). Burns and Stalker, who had conducted interview research in 20 companies in the late 1950s, had drawn a distinction between traditional bureaucratic or "mechanistic" organizational forms, appropriate to stable environments, and more loosely structured "organic" forms appropriate for innovation and adaptation to dynamic environments. Building upon these "exploratory" results in the mid-60s, Lawrence and Lorsch had conducted a much more structured study into a total of ten organizations including three matched pairs of effective and ineffective organizations in the same industry. On the basis of this they had postulated a contingency relationship between the complexity of the organizational environment and the degree of differentiation and associated integration necessary for an organization to manage effectively.

Figure 2

Environmental Characteristics	*Stable*	*Dynamic*
Complex	*Bureaucratic* **Differentiated** (Standardization of skills)	*Organic* **Differentiated** (Mutual adjustment)
Simple	*Bureaucratic* **Undifferentiated** (Standardization of work processes)	*Organic* **Undifferentiated** (Direct supervision)

Source: Adapted from Mintzberg (1979, p.286)

Arranged as a two by two contingency matrix (Figure 2), these results suggested a four component typology, the elements of which were readily identified with organizational forms characterized by four of the co-ordinating mechanisms. The entrepreneurial organization (direct supervision) and machine bureaucracy (standardization of work processes) were readily recognizable both from everyday experience and from the historical studies of Chandler (1962). The professional bureaucracy (standardization of skills) was also familiar from both academic studies (e.g. Blau, 1968; Perrow, 1970; Montagna, 1968) and everyday observation of public sector and professional service organizations. The innovative organization or adhocracy (mutual adjustment) corresponded to the "new" organizational form first observed in the contingency studies of Burns and Stalker (1966), Woodward (1965), and Lawrence and Lorsch (1967b) and explored by researchers such as Galbraith (1973), Goodman and Goodman (1976) and Chandler and Sayles (1973).[2]

What the four dimensional typology did not include was the form characteristic of large contemporary organizations, the multidivisional or diversified organization. To derive this fifth type, Mintzberg considered a third contingency dimension, that of market diversity. Following the historical studies of Chandler and others (e.g. Chandler, 1962; Channon, 1973; Dyas & Thanheiser, 1976; Franko, 1974), this could readily be correlated with the multidivisional form and co-ordination by standardization of outputs (i.e. divisional performance results).

[2] Greiner (1973) had also included a form corresponding to the adhocracy in his popular and influential extension of Chandler's evolutionary model of the firm.

The same literature also suggested a relationship between structural types and the historical contingencies of age, size and period of foundation. As firms developed and grew they tended to move from an entrepreneurial structure to a professional or machine bureaucracy, and from a machine bureaucracy to a diversified structure, a pattern that was also reflected in the historical development of the community of firms as a whole. Finally there was emerging evidence that diversified firms were moving towards matrix structures, which seemed to have some of the properties of the adhocracy (Sayles, 1976; Knight, 1976; Galbraith, 1973; Stopford & Wells, 1972).

Besides the contingencies we have already discussed, Mintzberg also related his types to the contingencies of technical systems, which had been the focus of Woodward's (1965) book and of subsequent studies by Perrow (1967) and the Aston group (e.g. Hickson *et al*, 1969; Child & Mansfield, 1972), but these did not play a definitive role in the theory. In his next major work, however, he did extend the theory to incorporate power and authority structures (Mintzberg, 1983b). Power had already been considered briefly as one of the contingency variables in the original presentation of the theory, and the inclusion of the basic parts of the system within the typology was rationalized primarily in terms of their characterization as powerful interest groups. The new presentation went further, however, in taking account of external as well as internal coalitions and looking in detail at the sources of organizational power and authority. Once again the theory drew in a complex fashion on a range of existing research, but the core of the new typology of power, apparently derived independently of the earlier structural typology, was an original three way categorization of internal elements or

sources of power: autocracy (embracing Weber's (1947) charismatic and traditional sources of legitimate authority), bureaucracy and meritocracy.

Autocracy corresponded fairly evidently to the entrepreneurial organization. Given the relationship between machine and diversified forms postulated in the original theory, bureaucracy could be seen as corresponding either to the machine organization or to the diversified organization, depending on the external power sources. In the presence of a dominant external coalition seeking maximum efficiency from the organization, one would get the classical bureaucracy of the machine organization. This could also be tied in to the historical contingencies. With a diffusion of ownership leading to fragmented and passive external power sources, the organization would tend to exploit the freedom to pursue growth as it's primary goal, with which growth the relative (internal) power of the CEO would be ceded to middle line managers as in the diversified organization. Finally a meritocracy of individuals could be identified with the professional organization and a meritocracy of professionals working in groups with the innovative organization or adhocracy.[3]

Finally, in subsequent publications, Mintzberg modified the presentation of his theory by playing down the external contingencies and devoting much greater attention to the strategic processes characteristic of the different types, as summarized in Figure 1.

[3] There is a source of potential confusion here resulting from the conflation of characteristics within Weber's (1947) original bureaucratic type. The professional organization had already been defined as a bureaucracy in the sense of being characterized by formalized structure and procedures, but it was not one in the political sense in which the word was used here. In subsequent presentations of the theory Mintzberg stuck to the former use of the word, defining the political characteristics of each organizational type but not identifying them by political labels.

Ideal types and configurations

A critical issue concerns the status of Mintzberg's typology. There is no doubt that he intended it to be descriptive of ideal types, but did he also intend it to describe a space of viable, stable or effective configurations? The original presentation was ambiguous. On one hand Mintzberg stressed that "each configuration is a *pure* type (what Weber called an 'ideal' type)" and described them in terms of "caricature, or stereotype" (1979 p.303). In the concluding chapter he described organizations as being pulled towards each of the five types and adopting hybrid forms within the intervening space. He recognized the existence of hybrid structural forms and recognized too that historical and developmental contingencies may over-ride environmental ones: an organization will typically start out, for example as an entrepreneurial form, and may retain that form for a considerable period, even if its environment is stable or complex. But he also argued that "effective structuring requires an internal consistency among the design parameters" and that in searching for this consistency organizations will tend to favour one of the types, resisting any pulls towards the others (1979 p.473).

In later presentations Mintzberg retained much of the imagery associated with ideal types, but he also introduced new arguments, developed in conjunction with Miller (Miller & Mintzberg, 1983), to support the general existence of configurations and the view that these

might embrace not only "effective" organizations but organizations in general (e.g. Mintzberg, 1989 p.96).

These arguments were of two kinds. Empirically, Miller and Mintzberg noted that the contingency studies of Woodward (1965) and Burns and Stalker (1966) had observed discrete configurations of organizational structure, even though they had framed their theories in terms of continuous scales. They also drew on two large scale studies by Miller and Friesen in which they had found significant clusterings of organizational and environmental variables (Miller & Friesen, 1978, 1980a). Theoretically, they drew on the organizational ecology of Hannan and Freeman (1977) to suggest that as for living species, Darwinian forces might allow only a relatively few stable configurations to survive in the same environmental setting. They also argued that once in a stable configuration, the high economic costs of change, the political and ideological resistances to it, and a rational preference for a known successful formula would all deter organizations from reacting incrementally to changes in the external environment and favour instead a pattern of discrete changes between internally consistent configurations. This argument also received some empirical support from the longitudinal research studies of Miller and Friesen (1980b; Miller, 1982).

Theoretical claims

There has been some debate as to whether organizational typologies should count as valid theoretical statements, as opposed to mere classification systems (Scott, 1981; Bacharach,

1989; Doty and Glick, 1994). There appears to be a growing recognition, however, that multidimensional typologies do have an important role to play in advancing our understanding of strategy and organizations (Meyer, Tsui & Greenwood, 1993; Greenwood & Hinings, 1993; Doty & Glick, 1994; Dess, Newport & Rasheed, 1993; Miller, 1997), and Doty, Glick & Huber (1993) have argued a strong case to the effect that Mintzberg's typology does meet, or could be specified so as to meet, the criteria of a theory (Whetten, 1989; Bacharach, 1989; Doty & Glick, 1994). Its key propositions are:

Proposition 1. The ideal types as defined in terms of three dimensions of co-ordinating mechanisms, organizational parts and types of decentralization are meaningful, self-consistent, parsimonious, and exhaustive.

This can be split up into three sub-propositions:

(i) there are significant correlations between constructs describing the three dimensions of the typology (self-consistency)

(ii) the set of such constructs is sufficient to capture all of the principal variables of organizational structure: any such variables not included in the typology can be treated as dependent on those that are (exhaustiveness)

(iii) these principal variables could not all be captured by a smaller set of types (parsimony)

Proposition 2. There are significant correlations between the types defined by the initial schema and the other structural and strategic variables (power and authority structures, characteristic strategy processes) ascribed to them.

Proposition 3. There are significant correlations between the specified contingency variables, and those of the initial typological schema.

In other words the contingency variables specified are dominant in the sense that they are determinative of organizational co-ordination and the dominance of organizational parts. Note that this proposition does not require any correlation between the contingency variables themselves which, Mintzberg recognized, may well pull the organization in different directions. The proposition is rather that each of the contingency dimensions (e.g. environment) will show a correlation with the typology *if* the other main contingencies (e.g. power, age and size) are controlled.

Proposition 4. Effective organizations will tend to adopt structures more characteristic of the individual types than ineffective organizations.

Proposition 5. Effective organizations will tend to adopt structures characteristic of the individual types rather than intermediate or hybrid combinations of types. In other words the types may be interpreted not merely as a complete set of ideal

types but also as a complete set of effective types interpreted as empirical configurations.

Proposition 6. Organizations in general will tend to adopt structures characteristic of the individual types rather than intermediate or hybrid combinations of types. In other words the types may be as a complete set of viable or stable types interpreted as empirical configurations.

To give precision to these propositions and open them up to empirical testing it would be necessary to develop a carefully specified set of constructs descriptive of the many different variables covered by the theory (Venkatraman & Grant, 1986; Podsakoff & Dalton, 1987; Dess, Newport & Rasheed, 1993). Mintzberg himself did not do this, preferring to seek an understanding of organizational realities through rich and multi-faceted descriptions and criticizing other researchers for a lack of attention to contextual subtleties (1979 p.12).

ASSESSING THE THEORY

The theory may be assessed on two sets of criteria. The first, which applies to all theories, is empirical: to what extent are the proposed correlations supported by empirical evidence? The second, which is relevant in the case of ideal type theories (Doty & Glick, 1994), is conceptual: to what extent are the ideal types conceptually consistent?

Empirical evidence

Empirical evidence in support of Mintzberg's theory is surprisingly limited. Much of the research upon which he based his synthesis was, of course empirical in nature, and many of the individual relationships postulated found some support in this body of research. Even disregarding the methodological problems of data aggregation across a wide range of disparate studies, however, the research could provide only partial and piecemeal support. As Mintzberg himself noted (1979 p.12) it was characterized by a marked variability of constructs and heterogeneity of units of analysis. It also addressed only a fraction of the relationships embraced by Mintzberg's theory. Many of those postulated in Proposition 1 had no scientific empirical basis, and even the key contingency studies of Burns and Stalker and Lawrence and Lorsch, which underpinned some of the key relationships in Proposition 2, were avowedly exploratory and limited in scope. Indeed the only contingency relationships to have been exposed to serious empirical scrutiny were those relating structure to technical systems, which did not play an important role in Mintzberg's theory.

Subject to the qualifications already noted, the results of Lawrence and Lorsch (1967) arguably provided partial support for Proposition 3, and those of Burns and Stalker (1966) for the existence of configurations in line with Proposition 5. Although they defined the mechanistic and organic types as ideal types or polar extremes forming "a polarity, not a dichotomy" (pp.119, 122), noting that intermediate forms existed and indeed that there was not such thing in reality as a "pure" form, Burn and Stalker also noted "a clear division

between those managements which adhered generally to one, and those which followed the other" (p.5). In other words the organizations in their sample did tend to cluster into two distinct configurations. The historical studies of Chandler (1962) and others also distinguished clearly between entrepreneurial, mechanistic and multidivisional types.

However other source studies (e.g. Lawrence & Lorsch, 1967a; Galbraith, 1973) did not identify discrete configurations, and while the studies of Woodward (1965) and, later, Miller and Friesen (1978, 1980a,b, 1984) and Hinings and Greenwood (1988) provide general evidence for the existence of configurations they provide no support for Mintzberg's specific typology. On the basis of the research to date Miller (1987) argued for a much more complex categorization of configurations, reflecting an interplay of independent environmental, structural, strategic and leadership imperatives. Indeed it is striking that despite the substantial empirical research programme into configurations carried out within Mintzberg's own research group at McGill, the group published no direct empirical test of his typology.

In the one published to study to directly test Mintzberg's theory, Doty, Glick and Huber (1993) assumed the validity of Proposition 1 and tested a range of hypotheses relating to the remaining propositions. They hypothesized (i) that each ideal type would correspond, with or without a time lag, to a corresponding configuration of the contextual variables of age, size, environment and technology; (ii) that organizations' proximity to the 'correct' ideal type as predicted by the contingency variables would be correlated with organizational effectiveness; and that in general proximity to (iii) any of the five ideal types, (iv) any of the

five total configurations and (vi) any hybrid configurations would also be correlated with effectiveness. None of these hypotheses were supported by the research.

The Doty *et al* study had significant limitations, however. The method used was a deviation from profile analysis in which the profiles of the five ideal types and their corresponding contingencies were specified as linear scale measures for a range of 15 structural and 6 contextual variables. The structural variables specified the prevalence of each co-ordinating mechanism (treated as independent variables); the importance of each part of the organization similarly treated); and five measures of decentralization, formalization, specialization and hierarchy of authority. The contextual variables included size, age, environmental complexity and turbulence, and two measures of technical systems complexity. Theoretical type profiles were determined by the expert ratings of the researchers and empirical profiles by coding of questionnaire responses from one senior manager in each of about one hundred organizations. A perfect fit hybrid configuration was defined as one deviating from each ideal type in direct proportion to the deviation of the firm's contextual variables from those specified for that type.

Deviation from profile analysis depends critically on the validity of profile specification, and is most robust when applied to a small number of profiles, clearly differentiated in terms of a limited number of attributes. The greater the number of variables used (and the smaller the sample size), the more the analysis is exposed to the effects of extraneous contingencies and the less sensitive it is to the partial correlations that would be expected from a partially flawed or over-extended theory. The finer the distinctions between profile specifications on

each variable, the greater the vulnerability to mis-specification. Doty *et al* used a large number of equally weighted variables on a relatively small sample and used finely structured measures for profile specification. Because their type profiles were defined in terms of characteristic or predicted average values of each variable, rather than in terms of idealized type or extreme values, their analysis was very sensitive to the precise value specified. Without any way of identifying clustering effects, the method could not be relied upon to distinguish between an unsystematic empirical deviation from profile and a mis-specification of profile types.

To summarize, the empirical validity of Mintzberg's theory remains unproven but largely untested. Even if we interpret the results of Doty et al as providing evidence against the theory as a whole, we are no nearer knowing which aspects of what is a very complex theory may be worth pursuing, and which not. On one hand, the researchers assumed the complete integrity of the ideal types (Proposition 1). The fifteen variables were assumed to have equal validity for each of the five types, and each type, including the adhocracy which Mintzberg had subdivided into two, was assumed to be representable by a single profile. On the other hand they did not control for potentially conflicting contingency variables (as suggested by Proposition 2); they did not include the contingencies of market diversity (which played a critical role in the theory) or power; and they gave significant weighting to those of technical systems. Reflecting their prominence in the research literature (e.g. Woodward, 1965; Perrow, 1967; Hickson *et al*, 1969; Child & Mansfield, 1972), these had been considered at some length by Mintzberg and the contingencies incorporated into his synthesis where

possible, but they had not been presented as determinative of the typology. If Mintzberg's theory is to be taken seriously, further more discriminating empirical studies are called for.

Conceptual difficulties

One possible conclusion from Doty *et al*'s study would be that we should look critically at the conceptual specification of Mintzberg's typology and at possible amendments or elaborations of the schema. Consideration of alternative possible variants of the type specification would help focus attention on the primary determinants of structural type and reduce the dependence of empirical research upon the validity of specific profile ratings.

Inevitably in such a complex synthesis, not all the constructs entering into Mintzberg's theory are equally well defined. Inevitably, too, some of the proposed classifications and correlations that contribute to the synthesis are better supported, whether conceptually or empirically, than others. A complete survey would exceed the scope of this paper, but we can draw attention to four areas which would appear to be more problematic than others:

- The role played in the typology by organizational parts, and in particular by the staff functions
- The characterization of the innovative organization or adhocracy
- The classification of types according to decentralization and the characterization of the multidivisional organization

The parts of the organization. Although it was clearly informed by his earlier study on the nature of managerial work (Mintzberg, 1973), Mintzberg offered no justification of his classification of organization parts, and only a general argument in support of its role in the overall typology. The organization parts entered the synthesis in several different ways. In some cases it was argued that a part of the organization had a particularly important or dominant role within in a particular structure, or was particularly important for the specification of a co-ordinating mechanism or its implementation. In general it was argued that each part would, in pursuit of its own particular interests, pull the organization towards the use of a particular co-ordinating mechanism. In later presentations the parts were also associated with the typology of power elements. The association of co-ordinating mechanisms with the interest of different parts of the organization was convincing, but it did not correlate completely with the other dimensions, or have any obvious causal implications. Direct supervision might both reflect and reinforce the power of the strategic apex, and co-ordination of skills that of the operating core. But it is difficult to see the technostructure as being much more than the agents of the strategic apex (or indirectly, according to Mintzberg's own analysis, of a dominant external coalition), and difficult to see the support staff as having any significant power or influence, even in an adhocracy. Indeed what seems to happen in this case, again according to Mintzberg's own analysis, is that power becomes dispersed throughout the organization and the distinction between line and staff breaks down, so that the category of support staff, so far as it relates to those engaged in the process

of mutual adjustment, loses its meaning.[4] Finally, the distinction between the technocracy and support staff seems problematic. Mintzberg defines the technocracy by its direct impact on operations, but a categorization that separates operations research from research and development and divides the personnel function into two, while combining R&D with payroll and cafeteria and giving the latter a significant interest in mutual adjustment, stretches its credibility to the limit.

The organizational parts are a valuable component of Mintzberg's rich picture of organizations, but their influence and significance are difficult to define, let alone to measure, and there are strong grounds for believing that the theory would gain in conceptual clarity and consistency if they were omitted from the core typology. If the nature of power and authority is to be captured in the theory, the power typology derived in Mintzberg (1983) would seem to be a far stronger candidate for inclusion.

The adhocracy. The entrepreneurial, machine and professional organizations are all easily recognisable as characteristic types, frequently observed and relatively easily specified in terms of their authority structures and co-ordinating mechanisms. However the definition of the innovative organization is problematic. Mintzberg noted (1989 pp. 196-7) that it was often identified with a lack of structure and argued strongly that this was not the case. In one important sense, however, it is. The other three undiversified types are all characterized by imposed structures powerful enough to dominate over any emergent social structures within

[4] Bowman and Carter (1996) present a case of a corporate "university" playing a key role in the determination of organization culture, but in this case the support staff were very much the agents of the strategic apex rather than a powerful constituency in their own right.

the organizations. In both the entrepreneurial and the bureaucratic types, it is rare for people to develop friendships and allegiances across hierarchical or functional boundaries. In terms of the organizational structure, such relationships are, in the main, an irrelevance. In the innovative type, in contrast, the only significant boundary is that around the organization as a whole. As managers gain agency by exploiting both internal ambiguities and external resources (Whittington, 1992) the work structures may themselves be emergent rather than imposed, and the social structures can no longer be ignored. In these circumstances we would expect to see a wide range of emergent structural adaptations, contingent upon such factors as the historical culture of the organization, the educational and skills mix of its employees, and the national culture in which it is situated. Mintzberg himself identified two sub-types distinguished by different task requirements leading to different relationships between the administration and operating core. An alternative distinction would be between the organization that has emerged with a minimum of structure from an entrepreneurial origin, such as the high-tech "stratocracies" described by Bharami and Evans (1987, 1989; Evans,1991), and that in which an existing bureaucratic structure and culture have been overlaid with more flexible co-ordinating mechanisms as in the matrix or project structures characteristic of much larger and more mature technology-based firms (see Ford & Randolph, 1992 for a review of the literature on these structures). Again a Japanese adhocracy is likely to look very different from a Spanish one or from an American one as people work together and combine work and leisure in different ways in the different cultures (Hofstede, 1980, 1991; Hampden-Turner & Trompenaars, 1993).

Given the nature of the research base we should probably treat Mintzberg's theory as applying primarily to North American and British organizations, and set aside questions of international variation. It may, however, be appropriate to split the innovative type into two or more distinct types, or to interpret it as an overlay on the other three undiversified types.

Since Mintzberg's original synthesis, business practice has evolved considerably as improved communications and information processing have opened up competition and drastically shortened competitive response times. It has been argued that business organizations no longer have the luxury of choosing between efficiency and innovation (Bowman & Carter, 1995) and that the capacity to innovate is now essential to organizational survival (Peters, 1987; Kanter, 1989; Hamel & Prahalad, 1994). Efficiency is essential too, but the same technologies as have transformed the competitive environment are also obviating the need for the formal structures of bureaucracy (Miles & Snow, 1992). Even where efficiency is a prime driver, power may be dispersed throughout the organization (Handy, 1992) and functional hierarchies replaced by self-organizing teams (Conger & Kanungo, 1988; Bowen & Lawler, 1992). The recent fashion for outsourcing, though driven by considerations of efficiency and appearing to act against the interests of the support staff identified by Mintzberg as key to the innovative organization, has been accompanied by the growth of flexible forms of co-ordination which bear all the hall-marks of adhocracy (Miles & Snow, 1992; Handy, 1992).

Decentralization and the divisionalized organization. From the point of view of both environmental contingencies and co-ordinating mechanisms divisionalization is very

different from the other structural characteristics analysed by Mintzberg - a point that was picked up by early reviewers of the book (Hage, 1980; Keiser, 1981). We have seen that whereas the four undiversified types can be related to the contingencies of turbulence and complexity, divisionalization corresponds to a completely different and independent contingency dimension, market diversity. Whereas the former contingencies are in some sense an accidental consequences of choices of product focus, which are typically dictated by factors such as the knowledge, experience and skills of the founders, market diversification is more likely to be the product of intentional strategic choice (Chandler, 1962, 1990; Chandler & Daems, 1980; Amburgey & Dacin, 1994). Whereas the other four co-ordinating mechanisms represent alternative ways of maintaining the operating performance of the business (the satisfactory production of goods and services), the standardization of outputs (the terminology is misleading) is related primarily to financial performance and can be effective only in conjunction with one or more of the other mechanisms.

Although the obvious implication is that divisionalization should be treated as a separate dimension, orthogonal to the four component typology of undiversified types, Mintzberg chose instead to emphasize its relationships to these types and create a simple five component typology. He emphasized especially the tendency of the divisional organization to emerge from the same basic environment as the machine organization and to impose a machine bureaucracy on its units. And by recasting Lawrence and Lorsch's differentiation dimension in terms of decentralization, he was able to present the divisionalized as a "diversified" form, falling between the machine and professional bureaucratic types and being in key respects a variant of the professional organization, with decision making

devolved to business units rather than to individual professional staff. Mintzberg's construct of decentralization, which referred essentially to the devolution of discretion, was, however, very different from Lawrence & Lorsch's construct of differentiation. It provided a means of comparing the five co-ordinating mechanisms, but at the expense of one of the contingency relationships most critical to the theory.

These difficulties have been compounded by changes in business practice over the last two decades. When Mintzberg first developed his theory the divisionalized form was indeed, as he suggested, largely restricted to mature manufacturing firms and characteristically made up and derived from machine bureaucracies. Since then, however, we have witnessed the rise of diversified professional service firms and of divisionalized high-technology adhocracies. Existing divisionalized firms have moved increasingly from bureaucratic to adhocratic co-ordinating mechanisms (Miles & Snow, 1992; Handy, 1992). And the growing internationalization of business has highlighted the existence and success of diversified entrepreneurial firms built upon the kinship relationships of Chinese expatriates in the "tiger" economies of Asia Pacific.

As with adhocracy there would seem to be strong grounds for interpreting divisionalization not as a type in its own right but as an overlay on the undiversified types. This would also have the advantage that, in separating divisionalization from decentralization, it would become possible to distinguish between different modes of headquarters control and co-ordination over the divisions as well as between different co-ordinating structures within the divisions (cf Bartlett & Ghoshal, 1993). Thus one might, for example, envisage a scale of

divisionalization corresponding to Goold and Campbell's (1987) distinction between tight financial control, moderate strategic control and weak strategic planning . An open question is how far it might be possible to have divisionalized firms embracing units with different coordinating structures.

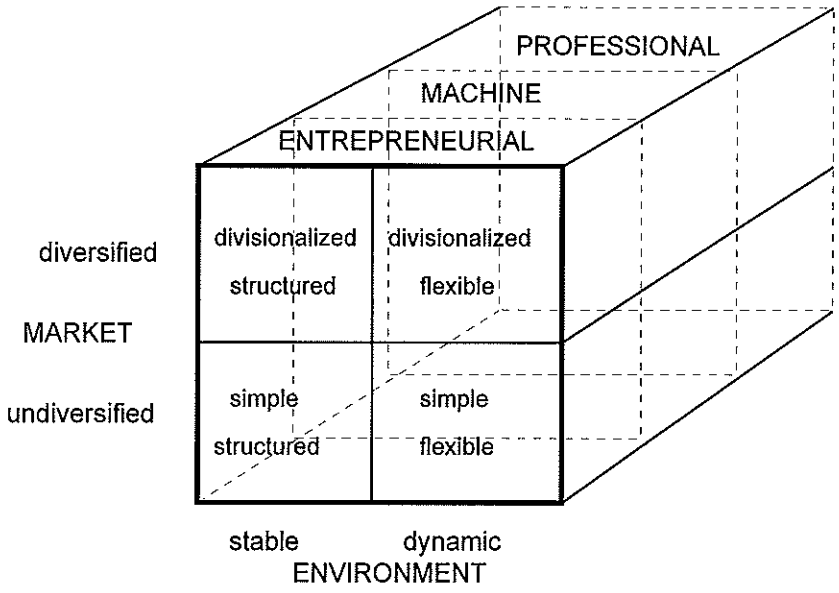
THEORETICAL REVISIONS AND DIRECTIONS FOR FURTHER RESEARCH

Given the wide dissemination and perceived explanatory power of Mintzberg's theory it is in our view essential that it should be subjected to a thorough empirical examination. Given the complexity of the theory, however, and the loosely defined nature of many of its constructs, this is far from straightforward. As a first step the arguments given above suggest the need for a revision to the theory, reducing the number of core types and separating out potentially independent variables. A way of doing this consistent with the arguments we have presented is shown in the typology of Figures 3 and 4.

Figure 3: Three core types

ENTREPRENEURIAL	MACHINE	PROFESSIONAL
Defining Co-ordination		
Direct supervision	**Standardization of processses**	**Standardization of skills**
Characteristic power and authority structure		
Autocracy (centralized power)	Bureaucracy (external power)	Meritocracy (devolved power)
Characteristic strategy processes		
Flexible but deliberate visionary leadership	Strategic programming	Collective choice; professional judgement; administrative fiat
Discrete change	Resistance to change	Incremental change
Characteristic contingencies		
Simple environment Young organization	Simple environment Mature organization	Complex environment

Figure 4: Four forms of each type



Reframing the theory in this way has three distinct advantages. First, while it retains the core features of Mintzberg's original typology, it eliminates many of the conceptual difficulties presented by that typology. Secondly, it incorporates developments arising after Mintzberg's original presentation. Thirdly, it puts the theory into a form much more amenable to empirical testing.

The revised theory includes just three core ideal types, each of which may be present in any of four forms. Each core type is assumed to be defined in terms of its primary co-ordinating mechanism only and not in terms of any key part of the organization. This avoids the conceptual problems associated with the parts of the organization typology and is consistent with Mintzberg's identification of the coordinating mechanism as the "essence" of structure

(1979, chapter 1). It also simplifies the structure of the theory. Other structural and strategic characteristics, such as power and authority structures and characteristic strategy processes are hypothesized to correlate with the types in stable configurations, but are not treated as part of the type definition, allowing us to separate the question of the existence of types from that of their characteristic features and so overcome some of the problems encountered by Doty *et al.*

The treatment of flexibility and divisionalization as orthogonal dimensions overlaying a basic three-component typology rather than as corresponding to separate types in their own right overcomes many of the problems associated with the definition of Mintzberg's innovative and diversified forms. By reducing the definitional complexity of the core types it also makes it significantly easier to control for specific contingency variables and test for the existence of partial as well as total configurations. For example, the independent contingencies of age and size on one hand, and environmental turbulence on the other, which in Mintzberg's original theory become conflated, are here separated out. In this respect the new form of the theory is much more open than the old to a form of empirical testing which can elucidate the strengths and weaknesses of the theory as part of a continuous process of tehoretical development rather than merely judging it on an all or nothing basis.

The question as to whether the flexibility dimension should be as continuous (corresponding to a continuum of degrees of adhocracy) or discrete (corresponding to distinctive adhocratic configurations) is not critical to the theory and is best resolved empirically. To maintain consistency with Mintzberg's original theory, however, it is here presented as discrete,

Across all three dimensions this gives a much higher number of possible configurations than in the original theory, and this may be seen as a loss of simplicity. However, it does allow us to pick up the important variations and sub-types we have identified above. Four of Mintzberg's five original types (entrepreneurial, machine, diversified machine and professional) correspond directly to configurations in the new version. His administrative adhocracy corresponds to the new flexible machine configuration, and his operating adhocracy to the flexible professional configuration. The small high-technology adhocracy or stratocracy is interpreted as an adhocratic entrepreneurial configuration, and the matrix organization as either a flexible machine or a flexible diversified machine configuration. There is no obvious precedent for the remaining configurations, but it is possible that these may correspond to relatively rare combinations of contingencies. There is still no provision for a divisionalized firm embracing two or more of the core types amongst its divisions, but this is something that can be independently tested.

It still remains to develop a detailed specification of the constructs needed to test the revised theory empirically, and to carry out this empirical research. This process should, however, be much more straight forward than for mintzberg's original formulation. Specifically, the revised theory may be specified in the form of the following hypotheses:

Hypothesis 1 Setting aside mutual adjustment, coordination in any organization will tend to be dominated by one of the three mechanisms identified with the core types.

Hypothesis 2 Coordination in any organization will tend to be dominated either by the mechanism identified in hypotheis 1 or by mutual adjustment.

The whole of Mintzberg's theory, whether in its original or revised form, rests upon the validity of his typology of coordinating mechanisms, and this needs to be tested independent of any other configurational properties. Here Hypothesis 1 asserts not only that the three core types are distinct, but also that they retain that distinctiveness in their flexible or adhocratic forms. Hypothesis 2 asserts that the adhocratic forms will constitute distinct types, i.e. that the structured-flexible dimension will be a discrete and not a continuous one. Note that, as stated, the hypotheses assumes that Mintzberg's missionary and political organizations will be relatively rare, the one because difficult to achieve the other because self-destructive and therefore transitory.

Hypothesis 3 There will be significant correlations between an organization's core type (as identified in hypothesis 1), its power and authority structures, differentiation, and strategy process characteristics.

This hypothesis extends the core types into internal configurations. Empirically it would need to be tested in two stages: initial correlation analyses to establish correlations for each individual variable and, where appropriate, refine the construct specifications used, and a subsequent cluster

or profile analysis incorporating those variables not filtered out of the theory in the first stage.

Hypothesis 4 There will be significant correlations between the complexity of an organization's environment and (a) its differentiation, (b) its core type.

Hypothesis 5 For organizations in relatively simple environments there will be a significant correlation between an organization's (a) age, (b) size and its core type.

Hypothesis 7 Within each core type there will be significant correlations between the turbulence of an organization's environment and the flexibility of (a) its coordinating mechanims, (b) its strategic processes.

Hypothesis 8 Within each core type there will be a significant correlation between the diversity of an organization's markets and the degree of its divisionalization.

Hypothesis 9 The variables treated in Hypotheses 4-9, or some subset thereof to be identified, will tend not only to correlate pairwise but also to cluster within the configurations identified in Figure 3.

Each of these hypotheses may be applied in two forms: (i) as applying to all organizations and (ii) as applying to effective organizations.

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