Chapter II:

The Evolving Information Systems Strategy

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Nolan Model

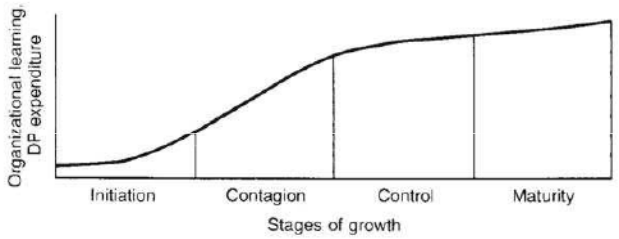


Figure 2.1 *Four stages of DP growth (amended from Gibson and Nolan, 1974; Earl, 1989, p.28)*

Nolan's Six stage model

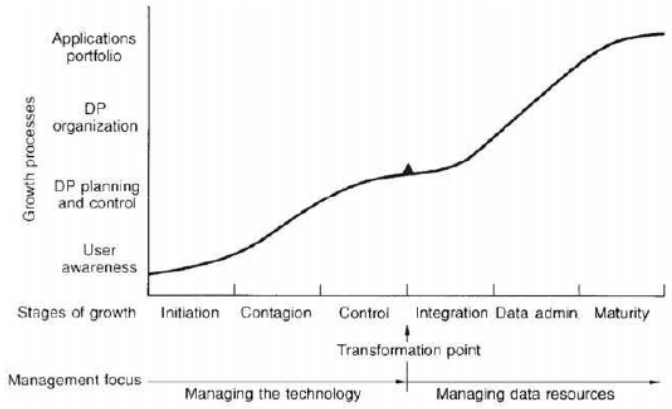


Figure 2.2 *Nolan's six-stage growth model (amended from Nolan, 1979)*

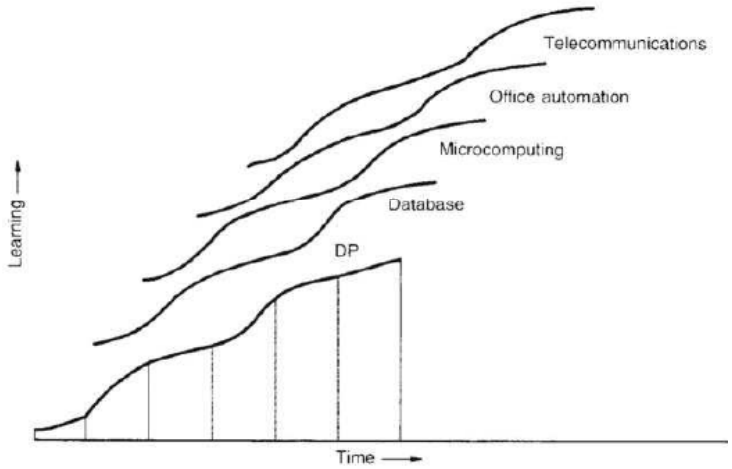


Figure 2.3 *Multiple learning curves (amended from Earl, 1989, p.31)*

Earl Model

Table 2.1 *Earl's planning in stages model (amended from Earl, 1986, 1988, 1989) and Galliers (1987a, 1989)*

Factor	*Stages*					
	I	*II*	*III*	*IV*	*V*	*VI*
Task	Meeting demands	IS/IT audit	Business support	Detailed planning	Strategic advantage	Business-IT strategy linkage
Objective	Provide service	Limit demand	Agree priorities	Balance IS portfolio	Pursue opportunities	Integrate strategies
Driving force	IS reaction	IS led	Senior management led	User/IS partnership	IS/executive led; user involvement	Strategic coalitions
Methological emphasis	*Ad hoc*	Bottom-up survey	Top-down analysis	Two-way prototyping	Environmental scanning	Multiple methods
Context	User/IS inexperience	Inadequate IS resources	Inadequate business/IS plans	Complexity apparent	IS for competitive advantage	Maturity, collaboration
Focus	IS department		Organization-wide		Environment	

The Hirschheim *et al. model*

Table 2.2 *Bhabuta's model linking the evaluation of strategic planning with information systems and the organization of the information systems function (amended from Bhabuta, 1988, p.1.76; Sutherland and Galliers, 1989, p.10)*

	Phase 1	*Phase 2*	*Phase 3*	*Phase 4*
Evolutionary phases of strategic planning	Basic financial planning	Forecast-based planning	Externally oriented planning	Strategic management
Value System	Meet the budget	Predict the future	Think strategically	Create the future
Competitive strategy mechanisms	Operational level productivity and diffuse innovation	Focused (niche) innovation and operational/tactical level productivity	Focused innovation and strategic productivity (quality focus)	Systemic innovation and productivity
Led by	Top management	Top and senior management	Entrepreneurial managers (top/senior/middle)	Corporate-wide employees
Application of IT/IS	Resource management Efficient operations Transaction processing Exception monitoring Planning and analysis	Effectiveness of divisional operations IT infrastructure Support key division makers	IT-based products and services Communications network Direct competitive tool	Inter-organizational IS (link buyers, suppliers, manufacturers, consumers). Facilitate organizational learning
Formalized IS and decision making	Processing of internal data	*Ad hoc* processing of external data	Systematic external data analysis	Link tactical/operational activities to external data analysis
Management of IT, location in hierarchy and scope	Technology management Individual projects Middle management responsibility	Formal planning of IS Data sharing and administration Focus on IT infusion Senior management responsibility	Couple IT and business planning IT planning at SBU/ corporate level Senior/Top management responsibility	Systemic support of organizational processes IT planning at SBU/ portfolio level Top management responsibility

Table 2.3 *The Hirschheim et al. model of changing considerations towards information systems management (amended from Hirschheim et al., 1988, p.4.33; Sutherland and Galliers, 1989, p.11)*

Phase/factor	*Delivery*	*Reorientation*	*Reorganization*
IS executive	External IS recruit	Inside business	Same person
Management focus	Within IS/DP	Into the business	The interfaces
Education needs	Credibility	Strategy	Relationship
CEO posture	Concerned	Visionary/champion	Involved
Leadership	The board	The function	Coalition

Towards a revised 'stages of growth' model

Table 2.4 *The Seven 'S's (Pascale and Athos, 1981, p.81)*

Strategy	Plan or course of action leading to the allocation of a firm's scarce resources, over time, to reach identified goals
Structure	Characterization of the organization chart (i.e. functional, decentralized, etc.)
Systems	Procedural reports and routine processes such as meeting formats
Staff	'Demographic' description of important personnel categories within the firm (i.e. engineers, entrepreneurs, MBAs, etc.). 'Staff' is *not* meant in line-staff terms
Style	Characterization of how key managers behave in achieving the organization's goals; also the cultural style of the organization
Skills	Distinctive capabilities of key personnel or the firm as a whole
Superordinate goals	The significant meanings or guiding concepts that an organization imbues in its members. Superordinate goals can be also described as the shared values or culture of the organization

Revised stages of growth model

Table 2.5 *Stages of IT growth in organizations (Sutherland and Galliers, 1989, p.14)*

Stage	*Description*
One	'Ad Hocracy'
Two	Starting the foundations
Three	Centralized dictatorship
Four	Democratic dialectic and cooperation
Five	Entrepreneurial opportunity
Six	Integrated harmonious relationships

Stage 1 'Ad hocracy'

Stage 1 of the model describes the uncontrolled, *ad hoc approach to the use* of IT usually exhibited by organizations initially. All organizations begin in Stage 1. This is not to say that all organizations remain in Stage 1 for any length of time. Some move very quickly to later stages. This may occur through pressure being exerted by a computer vendor, for example, actively attempting to push the client organization into a later stage of maturity.

Stage 2 Starting the foundations

the IT staff (for there is now a permanent cadre of such staff) attempt to find out about user needs and then meet them. This is the era of the IT Audit

Stage 3 Centralized dictatorship

The need for comprehensive planning is recognized and embraced wholeheartedly by some (usually powerful) members of the management team (including some IT staff). IT is under central control up to this stage, but it is actually *out of the control of those who are supposedly 'controlling' it.*

Stage 4 Democratic dialectic and cooperation

The conflicting forces concerned with gaining centralized control and with the move towards end-user computing of the previous stage, has left IT in a state of disarray, with little coordination between the DP department and those using the technology

Stage 5 Entrepreneurial opportunity

the IT function is at the stage of coming out from under the burden of simply providing supporting services to other parts of the organization and can begin to provide a strategic benefit in its own right.

Stage 6 Integrated harmonious relationships

one notices harmonious working relationships between ITpersonnel and other staff in the organization. IT is deeply embedded throughout every aspect of the organization.

Table 2.6 *A revised 'stages of growth' model (Sutherland and Galliers, 1989, p.23, reproduced in Galliers, 1991, pp. 61–62)*

Element	*Stage*					
	1 Ad hocracy	*2 Foundations*	*3 Centralized*	*4 Cooperation*	*5 Entrepreneurial*	*6 Harmonious*
Strategy	Acquisition of hardware, software, etc.	IT audit Find out and meet user needs (reactive)	Top-down IS planning	Integration, coordination and control	Environmental scanning and opportunity seeking	Maintain comparative strategic advantage Monitor futures Interactive planning
Structure	None	IS often subordinate to accounting or finance	Data processing department Centralized DP shop End-users running free at Stage 1	Information centres, library records, etc. in same unit Information services	SBU coalition(s) (many but separate)	Centrally coordinated coalitions (corporate and SBU views concurrently)
Systems	*Ad hoc* unconnected Operational Manual and computerized IS Uncoordinated Concentration in financial systems Little maintenance	Many applications Many gaps Overlapping systems Centralized Operational Mainly financial systems Many areas unsatisfied Large backlog Heavy maintenance load	Still mostly centralized Uncontrolled end-user computing Most major business activities covered Database systems	Decentralized approach with some controls, but mostly lack of coordination Some DSS-*ad hoc* Integrated office technology systems	Decentralized systems but central control and coordination Added value systems (more marketing oriented) More DSS-internal, less *ad hoc* Some strategic systems (using external data) Lack of external and internal data integration of communications technologies with computing	Inter-organizational systems (supplier, customer, government links) New IS-based products External-internal data integration