Chapter 1. The current status of spatial info technology

1. Introduction

2. Advances of spatial info concepts and technology

concepts and techs of spatial database systems(SDS) are drawn from DB systems

turned specific GIS applications to multi-purpose DB world of enterprise info infrastructure

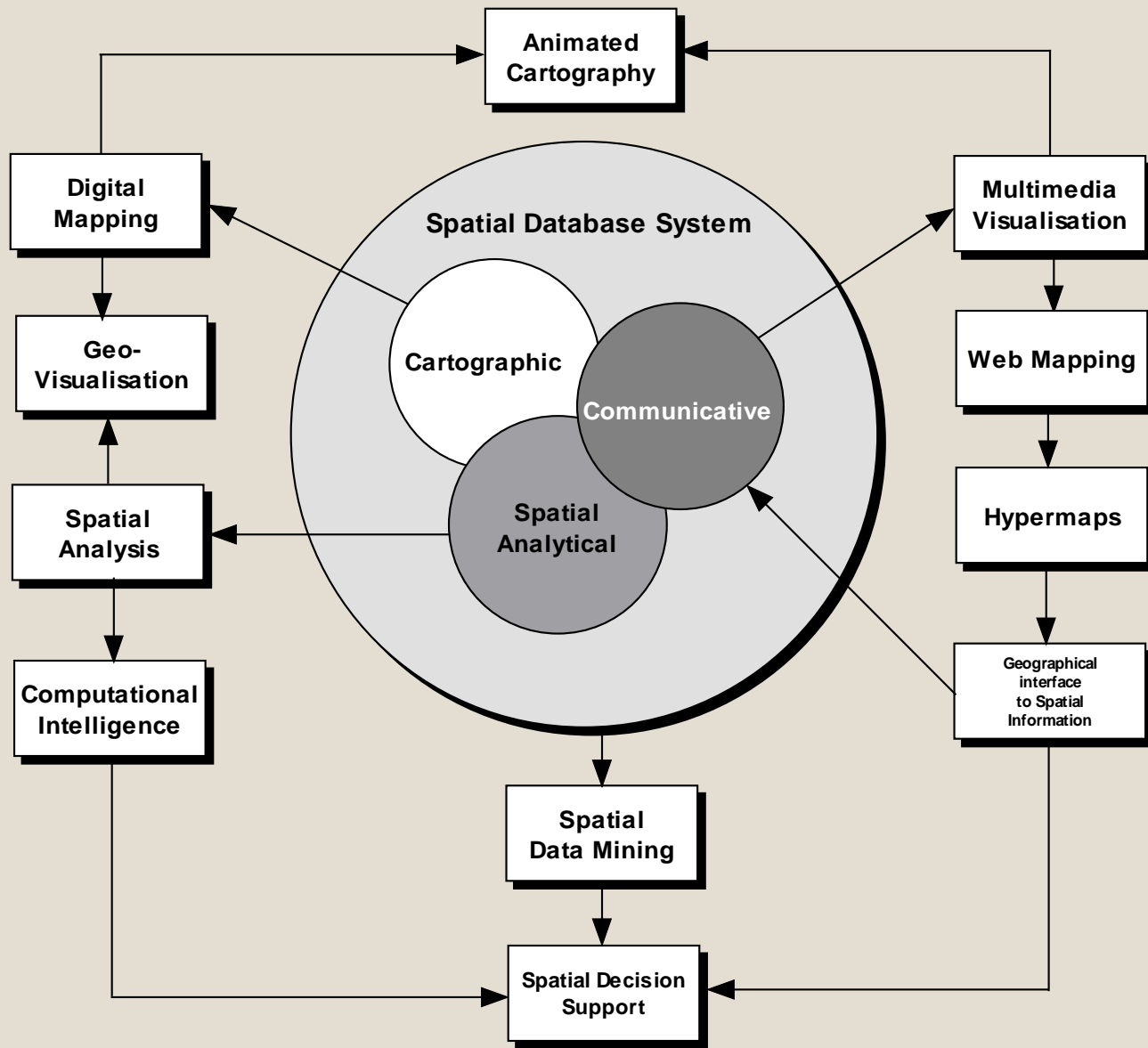data & users not applications/ tech that drive the use of spatial info – leading to data-based, user-centric

Figure 1-1 A new conceptualisation for spatial information functions

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2.2 Merging of spatial information w/ mainstream info tech

typical SDS today is = ordinary commercial DB w/ additional capabilities & functions to handle spatial data

capabilities & functions include :   spatial data types – special data type ex. OGC simple features

BLOB(binary large object)

spatial indexing – mechanism to access to spatial DB by stored coords

ex. R-tree, quadtree, B-tree

spatial operators – data processing functions, achieved by SQL

spatial application routines – SW components for specific DB functions

ex. spatial data loading, versioning, DB backup

key industry players

Oracle – spatial capability option, IBM(acquired Informix)-DB2, Sybase-SQS(spatial query server), Microsoft-Access, SQL Server

→ these all support ESRI, MapInfo, Intergraph, Autodesk product

2.3 Institutionalization of SDS

institutionalization = not ad hoc projects of little connection between them
                                    but permanent & integral components of corporate IT infrastructures

characteristics of institutionalized SDS
  serving the business goal of an organization as a whole rather than individual departments
      SDS can be set up differently using combination of sys arch :
          operational SDS optimized for on-line transaction processing(OLTP)
          spatial data warehouse – central repository of legacy spatial data
                                        optimized for on-line analytical processing(OLAP)
          spatial datamart – warehouse subset, for specific department & business functions
  senior management commitment & expectation of return on investment
  formal systems design & implementation using accepted industry practices
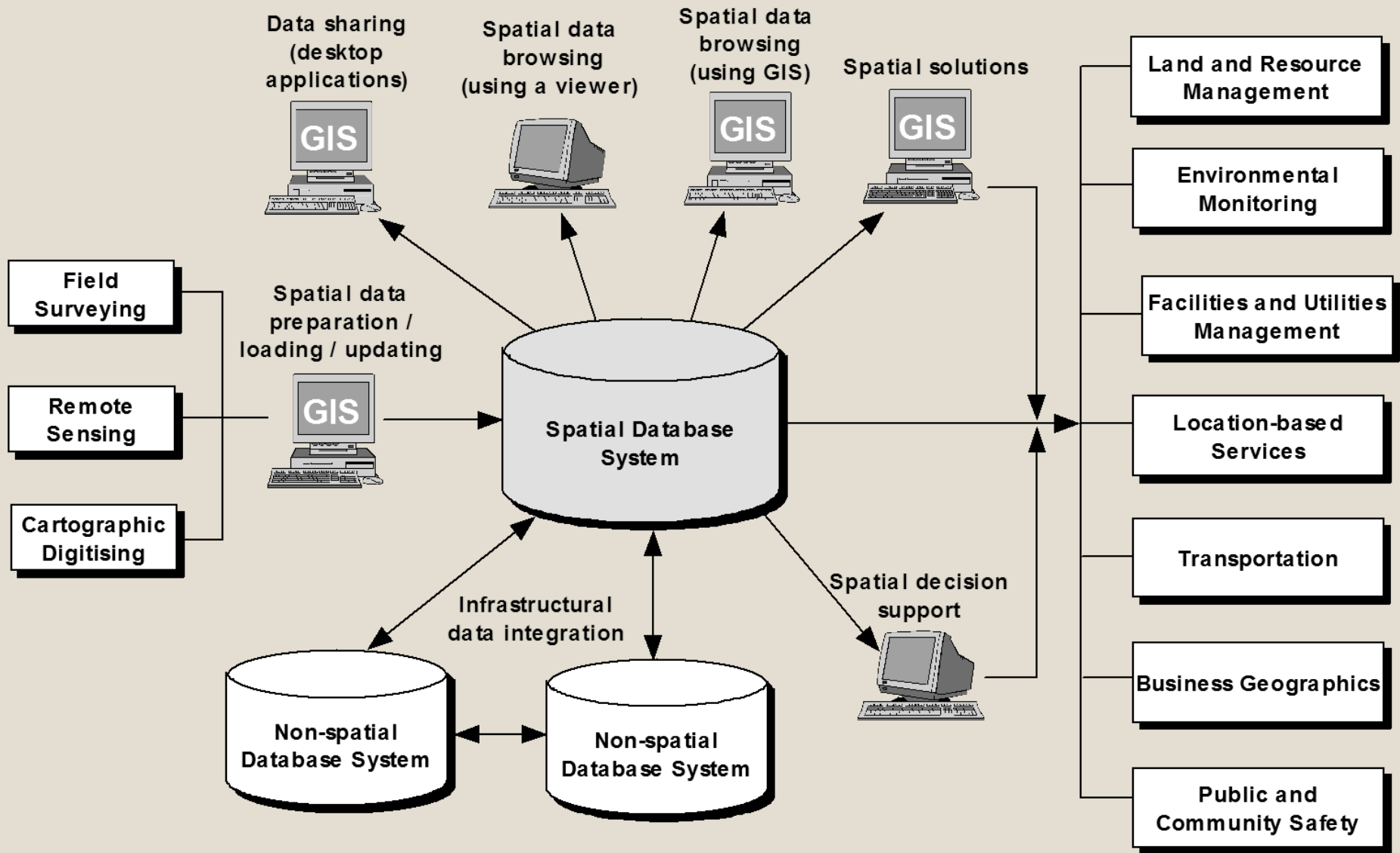 conformance to standards

Figure 1-2 New working relationship between spatial DBs and GIS

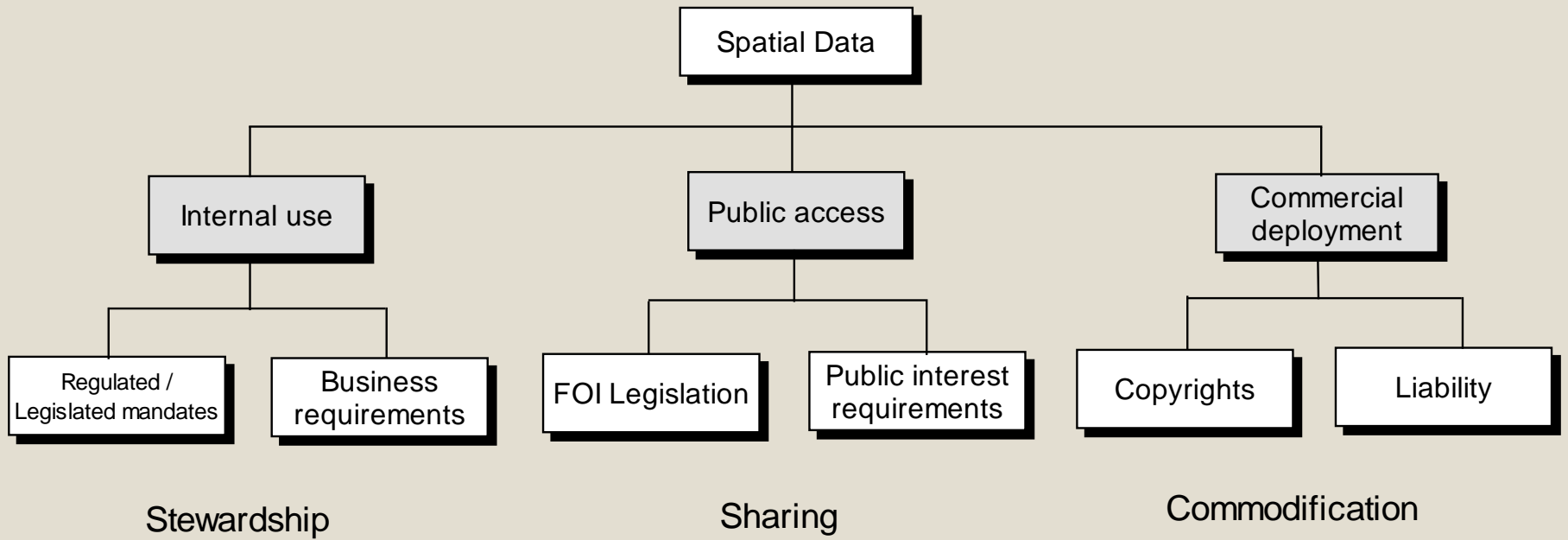Chapter 1. The current status of spatial info technology

2.4 Data-based & user-centric approach to spatial info

data-based & user-centric approach has 3 dimensions : stewardship, sharing, commodification

stewardship – concerned mainly w/ internal use of spatial info

sharing – concern is public access

commodification - focus on commercial selling / trading
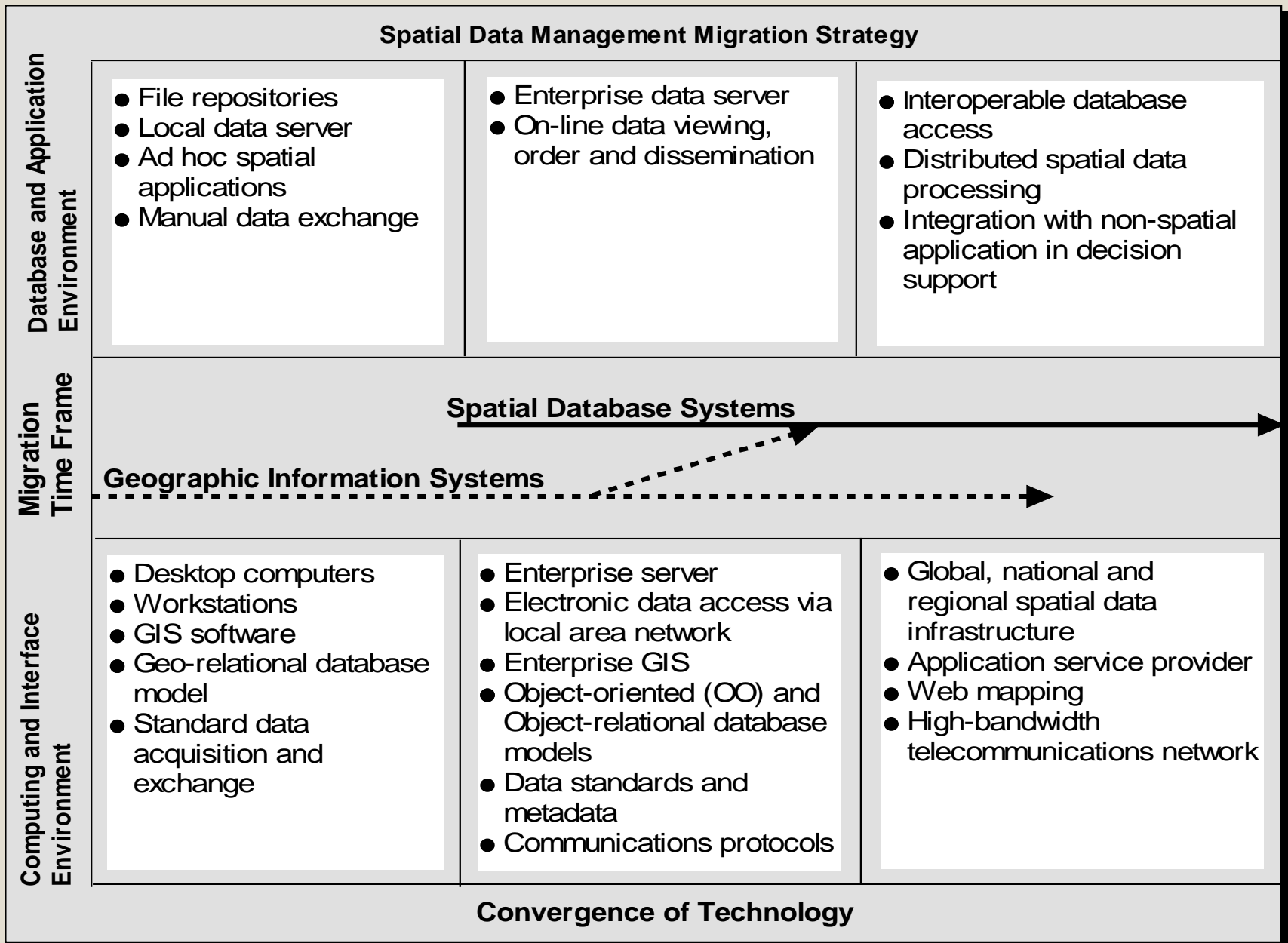
Figure 1-3 A data-based & user-centric approach to spatial info

Figure 1-4 Migration strategy from GIS to a SDS