

PART 3

MANAGEMENT ISSUES

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Introduction

THE EDITORS

Management is what differentiates success from failure wherever GIS is used in any kind of operational context. It can also make a crucial difference in a research environment. Appropriately, a whole new Section has been added to this Second Edition. Given the nature of GIS, it is however impossible to cover all aspects of GIS-related management under one header.

The very term ‘management’ is redolent of many different interpretations – not least because famous writers like Hamel and Prahalad, Handy, Mintzberg, Porter, or Peters take somewhat different views (and, in some cases, have changed them in successive books). For some people, management still implies a ‘top-down’ control culture akin to that of the former Soviet Union. For others still employed in traditional government bodies, where the chill wind of the New Public management (Foster and Plowden 1996) has not yet penetrated, it means monitoring of the administration which is carried out within explicit and unchanging rules. For some management gurus who argue for continuous reform, downsizing, and massive outsourcing – sometimes apparently on the basis of sensationalism and idiosyncratic case studies – it is all about ‘up front’ leadership to secure the future of the firm and its profitability for shareholder benefit. For others, management is all about changing workplace culture and ensuring staff become partners in organisational improvement and lifelong learning.

In this book, a catholic view of management is taken. This is illustrated in Figure 1 which shows some of the main concerns of any able, well-informed, and concerned manager who has anything whatsoever to do with GIS.

MAKING THE GIS EFFICIENT, EFFECTIVE, AND SAFE TO USE

In the first instance, the manager will have a proper concern with the definition of the GIS and the specification of its mandatory and desirable characteristics, including any necessary assessment of the predicted costs and benefits and hence with an investment appraisal. The initial or replacement procurement process is one which needs to be managed very carefully, especially in a public sector environment where transparency of process and fairness is a high priority – yet which must not be allowed to lead to undue delays. These issues are addressed in the first part of this section in the contributions by Tor Bernhardsen, Nancy Obermeyer, and Larry Sugarbaker. The very way in which an organisation perceives and treats the GIS will also influence the likelihood of its success; Heather Campbell summarises three different ways of thinking about the nature of a GIS in an institutional context. Finally, the operations of any system may seem routine but these can cause catastrophic loss of business, data, or reputation if not carried out effectively and with due regard for the errors certain to occur in data (see the contributions to the Data Quality Section of the Principles Part of Volume 1) or the software and for the local legal framework. Gary Hunter and Harlan Onsrud deal with the management of uncertainty and handling of legal liability, respectively.

DATA AS A MANAGEMENT ISSUE

As technology becomes ever more ubiquitous – more and more GIS have the same functionality and the

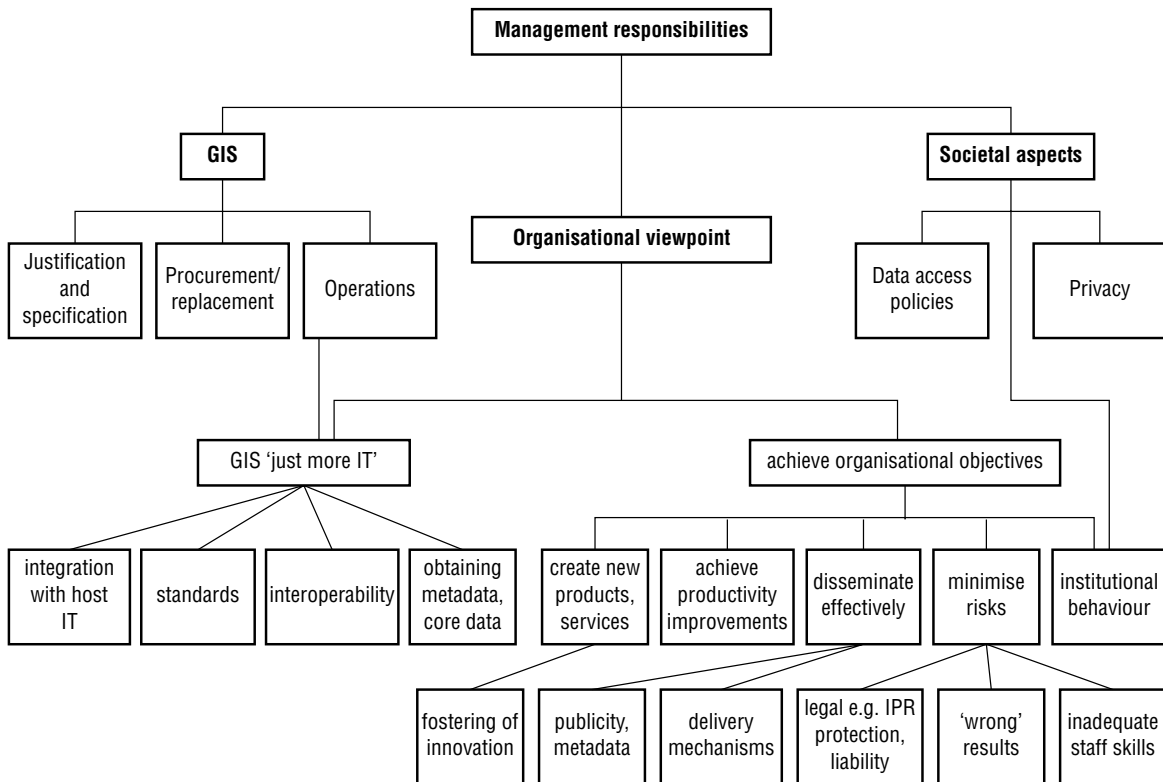


Fig 1. Issues which may face or impact upon all GIS managers.

same software is seen in offices from Albania to Zimbabwe – a key determinant of the ability to use GIS is the availability of data. Whilst any organisation will probably generate some data from its own operational activities, it is almost certain that some ‘core data’ will best be obtained from other, specialist organisations. Neil Smith and David Rhind, and John Estes and Thomas Loveland describe the sources of ‘geographical framework’ data and remote sensing imagery. Stephen Guptill summarises recent developments in metadata – data about data and where to find it – and Francois Salgé summarises the confusing multiple attempts to agree international standards relating to geographical information which, once implemented, should facilitate interoperability (i.e. the ability for different systems to work together, especially in a distributed and networked environment, and for data to be transferred safely and easily between systems: see Sondheim et al, Chapter 24).

GIS AS A MANAGEMENT TOOL

To any senior employee, however, the contribution of GIS towards sustaining the whole organisation has to be the major, perhaps overwhelming, concern. Here the relevant question is ‘what role can GIS play in achieving my organisation’s strategic objectives, helping us to meet our targets, and remaining sustainable and ever more prosperous?’ To answer this question sensibly, it needs to be subdivided into others such as:

- How can we do the things we are already doing more effectively and efficiently?
- How can we define and make new products or services which will be valued by our customers or users?
- How best do we ensure that these customers and users know and understand what is available?
- How best can the products and services be delivered?
- How can the organisation be protected against the myriad risks it faces, such as: theft of physical

goods or of intellectual property rights; the risk of liability for nonconforming products; the need to obtain, motivate, and retain staff with appropriate skills; and the need to recognise, minimise, or avoid errors in results produced by the system?

These questions are addressed through the development of three case studies of how GIS have been employed to meet the strategic objectives of different organisations – some real corporations and some virtual entities. Martin Birkin, Graham Clarke, and Martin Clarke describe how GIS tools have been used to assess market potential for a variety of different retail organisations. In contrast, Michael Shiffer sets out the GIS approaches he has employed in a planning context where highly interactive consultation and interaction with the public is a crucial factor. Finally, Jane Smith Patterson and Karen Siderelis translate management issues upwards from the shaping and sustaining of a single organisation to the same concerns with an entire political body, the State of North Carolina, USA.

THE IMPACT OF BROAD SOCIETAL ISSUES ON GIS

Beyond all these organisation-specific issues there are broad societal ones which impact, often indirectly, on management at almost all levels (see Figure 1). Education is one of the most fundamental of contemporary human issues; in GIS its importance goes far beyond technical training. Pip Forer and David Unwin begin by asking ‘education for what’? Predicated upon their view of the future utility and use of GIS and the impact of the new technologies described in earlier chapters, they summarise likely or desirable educational developments at all levels. Another fundamental contemporary issue is the right of an individual to privacy. What this means in practice and how geographical information or GIS relate to privacy form questions currently being debated in many countries. In contrast to the very pragmatic approach of Branscomb (1994), Michael Curry here provides an elegant philosophical chapter on GIS and privacy. The last chapter in the Section deals with data policy as espoused by different governments. These differ considerably both in principle and practice and this has many consequences for GI users, software vendors, and the state as a whole. David Rhind describes how the

key issues differ and what might well happen in the future. To a substantial degree – as in the case of new technological developments and intellectual property rights – what happens in the GIS field is at the very least strongly influenced by other actions, and so the wider public policy context is also described.

ACADEMIA, COMMERCE, AND GOVERNMENT AS ‘BUSINESS’

In all of the above, the reader could be excused for believing that the focus has been solely on commercial enterprises. Use of words such as ‘business’ and even ‘management’ could have fostered such a mistaken view. In practice, however, there has been a substantial convergence between the natures of government, academia, and commercial enterprises in many countries in recent years.

University staff have become increasingly dependent on competitive bidding for research and consultancy projects; heads of the same organisations or departments within them are running what are in effect multi-million dollar enterprises. On the other hand, universities have pioneered the reality of ‘networking’ and forging of international partnerships which are now common in commerce and becoming appreciated even in government. In national and local government, the New Public Management has become manifest in countries as far apart as Canada, Finland, New Zealand, Sweden, and the United Kingdom (see Foster and Plowden 1996; Rhind 1997). Driven by a common desire to cut back on public expenditure, the result has been to conceptualise government of all types being made up of policy formulation and service delivery functions (the latter of which do not need to be inside government, simply controlled by it). Associated with this is the view that users of the services are in effect customers, paying for service through their taxes, and that it is proper to make public assessments of performance on this basis. Even where this view (of the citizen and organisations as customers) has not been widely adopted – as in the USA – there has been much downsizing of public-sector organisations and encouragement to contract out functions to the private sector and otherwise collaborate with firms in that sector. Hence there are many commonalities between the ‘new government’ and commercial

enterprises – both are in business although some of the ground rules differ. Equally, however, governments and firms are coming to appreciate the ability of the best universities to innovate and to manage highly talented groups of creative individuals who are essential for success in a rapidly changing environment.

THE INADEQUACY OF CLASSIFICATIONS

No classification is ideal for all purposes. Each of the chapters in this Section makes contributions to many of the themes identified above. For example, the nature, provision, and success of education and training is relevant to the individual, to the organisation, and to society as a whole – as is reflected in Figure 1. As a more specific example, the common theme of the law links the chapters by Tor Bernhardsen, Harlan Onsrud, and David Rhind. There is then significant commonality of

interest in management at all levels in all types of organisations and at most levels within them. GIS can only prosper if it can produce what management requires; equally and increasingly, senior management cannot achieve what they desire without effective (and hence well-managed) contributions from the ubiquitous GIS. That all of this takes place within a wider and ever changing societal context – over which the individual has little control – is what makes management a constantly challenging task.

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- Rhind D W 1997 *Framework for the world*. Cambridge (UK), GeoInformation International