Preface

Competitive Intelligence can be described as producing and processing information about the environment of an organization for strategic purposes. To formulate a strategy, an organization needs to collect and process information about its environment—about, for instance, competitors, customers, suppliers, governments, technological trends or ecological developments. Collecting and processing environmental information has always been important. However, because of the increasing complexity and dynamics of the environment, the pressure to produce relevant, timely 'actionable' intelligence increases as well. To collect and process strategically relevant environmental information in a structured fashion, a large number of organizations are currently implementing a competitive intelligence function.

To structure the process of competitive intelligence, several authors propose a cycle of four stages. This "intelligence cycle" contains the following stages:

1. **Direction.** In this stage the organization determines its "strategic information requirements." It determines about what aspects in the environment data should be collected.
2. **Collection.** In this stage, it is determined what sources can be used for data collection and the data are actually collected.
3. **Analysis.** In the analysis stage the data collected in the previous stage are analyzed to assess whether they are useful for strategic purposes. Here, the actual "production" of intelligence (data relevant for strategy) takes place.
4. **Dissemination.** The intelligence (produced in stage 3) is forwarded to the strategic decision-makers and used to formulate their strategic plans.

To support these stages, different Information and Communication Technology (ICT) applications may be employed. These ICT tools include the Internet as a tool for direction or collection activities; groupware applications for uncovering strategic information requirements; data warehouses and associated data mining tools for collecting and analyzing data; specific applications for supporting the analysis (e.g., System Dynamics software); the use of an Intranet for disseminating intelligence; or even specific CI applications covering all the four stages. The number of possible ICT tools for CI is large—and an important question for organizations is what tools they should select and implement for their own CI activities. In fact, an uncritical implementation and use of certain tools may be problematic—it can lead, for instance, to an information overload or to large collections of irrelevant data.

To select ICT tools for competitive intelligence activities, an organization needs an understanding of the role of ICT in these activities. This involves an understanding of the relation between ICT and CI activities and of the (current) possibilities of ICT for supporting CI activities.

This book intends to address this need. The chapters in this book all contribute to an improved understanding of the role and contribution of ICT regarding CI activities. The coverage provided in this book ranges from conceptual issues (addressing the relation of strategy formulation, viability and ICT) to practical issues (such as guidelines for implementing ICT tools to monitor strategy or case studies on Intranet usage for CI activities).

The following paragraphs provide an overview of the chapters of this book and their coverage of issues and applications.

Chapter I, titled *The Role of Information and Communication Technology in Competitive Intelligence*, by Dirk Vriens of the Nijmegen School of Management, University of Nijmegen, The Netherlands, provides an introduction in the relevant concepts used in this book. He presents a definition of competitive intelligence and reviews current literature on the use of ICT in intelligence activities. In this review, special attention is paid to the role of the Internet and to data warehouses and associated tools. The chapter ends with a discussion of criteria organizations can use to select ICT tools for supporting their intelligence processes.

Chapter II, titled *Sharp by Connection: Linking Competitive Intelligence and Intranets*, by Paul Hendriks of the Nijmegen School of Management, University of Nijmegen, The Netherlands, and Wendy Jacobs of PricewaterhouseCoopers, The Netherlands, assesses the usefulness of the concept of acceptability to secure an adequate conception of ICT's value to competitive intelligence. They use the Technology Acceptance Model and Task-

Technology Fit model to judge the acceptance of ICT (applications) in the context of the CI function. They use a case of an intranet application for CI to support their argument.

Chapter III, titled *Using Web Link Analysis to Detect and Analyze Hidden Web Communities*, by Edna Reid of Nanyang Business School, Nanyang Technological University, Singapore, explains that organizations have implicit Web communities, i.e., "hyperlinked" communities of Web users expressing an interest in the organization. According to the author, analyzing these communities may produce valuable knowledge about (hidden) stakeholders. The author proposes a framework for analyzing these communities and discusses how results from this analysis can be used for competitive intelligence. A case study is provided to demonstrate the use of the framework.

Chapter IV, titled *Enabling Strategy Formulation by ICT: A Viable Systems Approach*, by Dirk Vriens and Jan Achterbergh of the Nijmegen School of Management, University of Nijmegen, The Netherlands, approaches the use of ICT for CI from the perspective of strategy formulation. CI is a necessary part of strategy formulation and the authors hold the view that an understanding of the process of strategy formulation helps in understanding what intelligence is needed in this process. They use the viable systems model to derive the necessary knowledge that should be produced and processed for strategy formulation. Next, they discuss an "ICT-architecture" for supporting the knowledge processes, producing the relevant knowledge for strategy formulation.

Chapter V, titled *Using Groupware to Gather and Analyze Intelligence in a Public Setting: Development of Integral Safety Plans in an Electronic Meeting*, by Etiënne Rouwette and Jac Vennix of the Nijmegen School of Management, University of Nijmegen, The Netherlands, discusses a case in which groupware was used to support CI activities in a municipality in The Netherlands. Local Dutch municipalities encourage the participation of stakeholders in the development of safety plans. Relevant parties (representatives of, for instance, the police force, municipality, fire department or health care) participate in directing the information search, collection of data and analysis of data to arrive at a safety plan which can be forwarded to relevant members of responsible organizations. To support this group intelligence process, the authors describe the use of a specific kind of groupware application. They conclude that this application effectively supported the intelligence process.

Chapter VI, titled *Improving Competitive Intelligence Through System Dynamics*, by Özge Pala, Dirk Vriens and Jac Vennix of the Nijmegen School of Management, University of Nijmegen, The Netherlands, proposes

the use of system dynamics to improve intelligence activities. The authors state that a "model of the organization in its environment" is needed in intelligence activities. In the direction stage, this model is used to determine the relevance of the environmental cues and in the analysis stage it is needed to determine the strategic impact of the values of these cues. Ideally, this model should capture the complexity and dynamics of the "real world." The authors explore the usefulness of system dynamics in arriving at such a model, because system dynamics seem suited for dealing with complexity and dynamics of systems. The authors present a method for using SD for CI. To build and analyze system dynamics-based models and to use them for CI purposes requires ICT support. At the end of the chapter, the authors deal with the issue of ICT support.

Chapter VII, titled *A Framework for Business Performance Management*, by Marco van der Kooij, Hyperion Solutions, The Netherlands, presents a method for tying ICT to the organization's intelligence needs, its management and to the collaboration of people within the organization. The method provides six steps organizations should take to arrive at ICT applications delivering the intelligence for managing their business performance. The author argues that using a framework like his can help to circumnavigate the pitfalls of business intelligence applications.

Chapter VIII, titled *The Source Map: A Means to Support Collection Activities*, by Dirk Vriens and Jan Achterbergh of the Nijmegen School of Management, University of Nijmegen, The Netherlands, presents a tool to deal with "meta data" regarding the sources organizations use in their intelligence gathering. The authors describe criteria to evaluate sources and argue that scores on these criteria can be used in (1) the selection of a relevant source vis-à-vis a certain intelligence topic and (2) evaluating the total collection of sources.

In Chapter IX, titled *Intelligence from Space: Using Geographical Information Systems for Competitive Intelligence*, by Paul Hendriks of the Nijmegen School of Management, University of Nijmegen, The Netherlands, it is argued that the spatial element in data and information relevant to organizations is underused in decision-making within the domain of Competitive Intelligence. The chapter explores how the CI function may benefit from developing a spatial perspective on its domain and how building, exploring and using this perspective may be supported by a specific class of information systems designed to handle the spatial element in data: Geographical Information Systems (GIS).

Chapter X, titled *Building a Competitive Intelligence System: An Infrastructural Approach*, by Egbert Philips of the Nijmegen School of

Management, University of Nijmegen, The Netherlands, argues that for building and implementing a competitive intelligence system, the ICT tools should be treated as a part of the intelligence infrastructure. The chapter presents an approach to ensure this. Moreover, it shows how this approach was used in a large company and illustrates the resulting ICT tool.

Chapter XI, titled *It's All in the Game: How to Use Simulation-Games for Competitive Intelligence and How to Support Them by ICT*, by Jan Achterbergh and Dirk Vriens of the Nijmegen School of Management, University of Nijmegen, The Netherlands, discusses the contribution of building and using simulation games for competitive intelligence activities. The authors argue that during building and use of these games, knowledge relevant for the four intelligence stages is produced and communicated. They also discuss possible uses of ICT to support building and using simulation games for CI.

Chapter XII, titled *Using Groupware to Build a Scenario-Based Early Warning System*, by Theo van Mullekom and Jac Vennix of the Nijmegen School of Management, University of Nijmegen, The Netherlands, shows how groupware supports scenario-building in order to contribute to the direction stage of the intelligence cycle. The authors present a procedure consisting of seven steps by means of which scenarios can be built. Moreover, they show how scenarios can be used to derive early warning variables that should be monitored to produce intelligence. Next, they discuss how groupware can support scenario-building.

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