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Titolo	The magic ring : systems thinking approach to control systems // by Piero Mella
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ISBN	3-319-05386-8
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (615 p.)
Collana	Contemporary Systems Thinking, , 1568-2846
Disciplina	629.8312
Soggetti	System theory Business Management science Algorithms Computational complexity Systems Theory, Control Business and Management, general Algorithm Analysis and Problem Complexity Complexity
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	The Language of Systems Thinking for Control Systems -- The Ring: The General Structure of Control Systems -- The Rign Variety: A Basic Typology -- The Ring Completed: Multi-lever and Multi-objective Control Systems -- The Ring: Observation and Design -- The Magic Ring in Action: Individuals -- The Magic Ring in Action: Life Environments -- The Magic Ring in Action: Organizations -- The Magic Ring Explores Cognition and Learning -- Concluding Remarks: Toward a General Discipline of Control.
Sommario/riassunto	This book presents a gradual path toward "educating" readers in understanding how Control Systems truly operate and in recognizing, simulating and improving them in all fields of activity. Starting from the hypothesis that knowledge of Control Systems is not only a technical fact but also represents a discipline – that is, "A discipline is a developmental path for acquiring certain skills or competencies. (...) To

practice a discipline is to be a lifelong learner. You “never arrive”; you spend your life mastering disciplines.” (Senge, 2006, p. 10) – Piero Mella has set the objective of making Control Systems a topic that is, in a certain sense, simple and attractive by turning to the effective symbolism typical of Systems Thinking models and avoiding too technical and formal a treatment of the subject. Thus readers should know that this is not an engineering, physics, biology or economics text, nor a mathematics one either. Technical or mathematical tools are not necessary to construct Control Systems; instead the book adopts a highly simple and universal logic behind the notion itself of control process and the simple and universal action of the Control Systems that produce this process. The Magic Ring: Systems Thinking Approach to Control Systems is divided into 10 chapters. Chapter 1 seeks to review the basic language of Systems Thinking and the models it allows us to create, while Chapter 2 introduces the control process, presenting the theoretical structure of four simple Control Systems we all can observe and manage. In Chapter 3 a general typology of Control Systems is proposed with examples taken from observations of reality. The view of Control Systems is broadened in Chapter 4 by introducing two important generalizations: 1. multilever Control Systems, with levers that are independent or dependent of each other; 2. multi-objective systems, with independent or interdependent objectives. Chapter 5 outlines the guidelines for recognizing, observing or designing Control Systems and presents the problems that arise regarding their logical realization, introducing the fundamental distinction between symptomatic and structural control. Chapters 6-9 undertake a “mental journey” through various “environments”, increasingly broader in scope, suggesting to the reader how to recognize therein Control Systems that, by their ubiquitous presence, make the world possible in all its manifestations. Finally Chapter 10 covers ideas about a Discipline of Control Systems and the human aspects of control.
