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Sommario/riassunto	This book reports recent advances on Process Monitoring (PM) to cope with the many challenges raised by the new production systems, sensors and "extreme data" conditions that emerged with Industry 4.0. Concepts such as digital-twins and deep learning are brought to the PM arena, pushing forward the capabilities of existing methodologies to handle more complex scenarios. The evolution of classical paradigms such as Latent Variable modeling, Six Sigma and FMEA are also covered. Applications span a wide range of domains such as microelectronics, semiconductors, chemicals, materials, agriculture, as well as the monitoring of rotating equipment, combustion systems and membrane separation processes.