

Culinary and Food Service Operations Management for Industry 5.0



David Graham, Ewen Crilley, Peter Cox
with John Cousins



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“As a culinary/hospitality educator, industry practitioner, chef and above all, a human, I found this book to be an exceptional, forward-thinking guide to modern food service. It seamlessly connects tradition with Industry 5.0, offering practical insights on technology, sustainability, and human-centered leadership. The clarity, relevance, and real-world application make it invaluable for students and professionals alike. A timely and inspiring resource that challenges thinking and equips readers to lead confidently in an evolving hospitality landscape.”

Shaun Leonard, Executive Chef, Head of F&B and Culinary Programme Leader, Swiss Culinary Academy, BHMS Business & Hotel Management School, Switzerland

“A clear, practical view of modern hospitality, combining real-world experience with fresh thinking on sustainability and innovation. Essential reading for anyone shaping the future of our sector.”

Tommy Banks, Michelin starred Chef & Owner of The Black Swan at Oldstead, Roots and The Abbey Inn in North Yorkshire, UK

“The authors offer a timely exploration of culinary and food service operations within the context of Industry 5.0, where technological advancement is balanced with human creativity and the need for more resilient and personalised service systems. Grounded in contemporary practice, the book provides an insightful perspective on a sector undergoing significant transformation. This is a valuable and highly recommended read for both students and industry professionals seeking fresh direction in an evolving landscape of contemporary hospitality.”

Dr Vladimir Antchak, Discipline Lead - Hospitality and Tourism, British University Vietnam

“A fresh take on culinary management, reflective of both the industry of today and for tomorrow. Packed with case studies from modern, future-focused food businesses, it shows the real world of food service in action, as the authors ask important – and sometimes uncomfortable – questions about the evolving nature of food production and service. A book you will reach for again and again, both in the classroom and the kitchen!”

Chris M. Jones, Director of Food Education, The School of Artisan Food, Welbeck, UK

“This textbook is an essential guide, offering a comprehensive and insightful exploration of Food Service Management 5.0 through the integration of theory and practice. It balances technological innovation with ethical leadership and CSR, while its structured 12-week framework provides a forward thinking, valuable resource for students and practitioners alike.”

Dr Tracy Harkison, Associate Professor, School of Hospitality and Tourism, Auckland University of Technology, New Zealand

“The specialised authors offer a rigorous, contemporary examination of culinary and food service operations through the lens of Industry 5.0. Integrating theory, case studies, and critical perspectives, it is highly suitable for undergraduate and postgraduate teaching, supporting scholarly debate on technology, sustainability, and human-centric hospitality management within global educational contexts and changing service standards worldwide”.

Dr Paul Strickland, Discipline Lead and Senior Lecturer - Sport, Tourism, Hospitality and Event Management , La Trobe Business School, La Trobe University, Australia

“*Culinary and Food Services Operations Management for Industry 5.0* is an essential companion for students of hospitality, catering, and events management, offering a contemporary and forward-thinking perspective on food and beverage operations. By integrating Industry 5.0 concepts with core principles, the text equips learners with the knowledge and skills needed to navigate an increasingly complex and technology-driven sector.

Dr Peter Robinson, Head of Subject: Events, Tourism and Hospitality Management Carnegie School of Sport, Leeds Beckett University, UK

“This timely and innovative textbook makes a valuable contribution to the field of culinary, food service, and hospitality operations management. By foregrounding the emerging paradigm of Industry 5.0, it moves decisively beyond traditional operational models to address technological innovation, sustainability, ethics, and human centred practice. Combining strong theoretical foundations with international case studies and practical learning features, the book challenges established orthodoxy and equips students and professionals with the insight needed to lead in a rapidly evolving, global hospitality environment. An essential and forward looking resource for contemporary food and beverage education and practice. It is a great read for practitioners in the African market.”

Professor Byron A Brown, Professor of Education and Deputy Vice Chancellor of Research and Innovation at University of Zululand, South Africa

“This is not your typical hospitality textbook—it challenges as much as it guides. Sharp, flexible, and unapologetically forward-looking, it pushes readers to question norms and rethink practice in the age of Industry 5.0. Dip in anywhere, but expect to leave provoked, stretched, and better equipped to lead real change. “

Professor Malcolm Todd, Pro Vice-Chancellor, University of the Built Environment, National Teaching Fellow and Principal Fellow of Advance HE

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Glossary of terms

Aesthetic labour	Staff dress, physical features and attitude aligned to the brand image
AI	Artificial Intelligence is a computer systems designed to perform tasks that normally require human intelligence
AR	Augmented Reality is technology that overlays digital content onto the physical environment
B2B	Business to Business
Co-bots	Collaborative robots designed to work safely alongside each other
Convenience culture	A consumer behaviour trend characterised by a preference for speed, ease, and minimal effort in accessing products and services
CSF	Critical Success Factors
CSR	Corporate Social Responsibility is a business approach in which organisations take responsibility for their social, environmental, and ethical impacts
Digital divide	The gap between individuals or communities with access to digital technologies and those without, often linked to social and economic inequalities
Digital native	An individual who has grown up using digital technologies and is typically comfortable with digital tools and online environments
Eatertainment	A play on the words of eating and entertainment to create a form of restaurant offer
Emotional labour	Using one's emotions to act a role conducive to the business needs
EPOS	A digital POS system that integrates sales processing with inventory management, reporting, and data analytics
FAMM	Five Aspect Meal Model
GDPR	General Data Protection Regulation is a European Union regulation that governs how personal data is collected, processed, stored, and protected
GP	Gross Profit
Green washing or green sheen	A position of promoting the business as being more environmentally friendly than it is
Gueridon service	A form of table service, incorporating a trolley or side table, where the dish is finished in front of the customer
HACCP	Hazard Analysis and Critical Control Points is a systematic preventive approach to food safety
HRI	Human–Robot Interaction is the study and design of how humans interact with robots in shared environments

ICT	Information and Communication Technology is used to create, store, transmit, and manage information and communication processes
Instagramable	Describes spaces, products, or experiences designed to be visually appealing and shareable on social media platforms
IoT	Internet of Things refers to interconnected devices that collect, share, and analyse data via the internet to improve efficiency
Kaizen	A Japanese business philosophy that encourages continuous improvement through small, incremental changes
KPI	Key Performance Indicator
Mise-en-place	Basic preparation – French Culinary Term
Multi-sensory dining	A dining experience designed to engage multiple senses
Operations management	The management of various activities which are undertaken in managing the resources
Partie system	Ordering of the kitchen brigade with defined roles and responsibilities
POS	Point of Sale
PPC	Pay-Per-Click is an online advertising model where advertisers pay a fee each time their ad is clicked
Pub	UK expression for a Public House, a bar serving primarily alcohol and may also offer food
QA	Quality Assurance
QI	Quality Improvement
SDGS	Sustainable Development Goals is a set of 17 global goals established by the United Nations to address social, economic, and environmental challenges by 2030
SDL	Service-Dominant Logic is a marketing perspective that views value as co-created through interactions between providers and customers
SEM	Search Engine Marketing is the use of paid advertising strategies on search engines
SEO	Search Engine Optimisation is the practice of improving a website's visibility in organic search engine results
Servbots	Service Bots, autonomous or semi-autonomous robots designed to perform customer service tasks
Service process	A structured sequence of activities and interactions designed to deliver value to customers and meet their needs
Servicescape	The physical and ambient environment in which a service is delivered
SERVQUAL	A service quality measurement model that assesses the gap between customer expectations and perceptions

SST	Self-Service Technologies that enable customers to perform service tasks on own without direct employee contact
TBL	Triple Bottom Line is a sustainability framework that evaluates organizational performance based on social, environmental, and economic outcomes
TQM	Total Quality Management
UN	United Nations is an international organisation that promotes global cooperation on peace, security, human rights, and sustainable development
VAT	Value Added Tax (UK) Purchase Tax
VFM	Value for Money
Visionary leadership	A business style that focuses on a long-term plan
VR	Virtual Reality is immersive technology that creates a fully digital environment
XR	Extended Reality, an umbrella term encompassing AR, VR, and mixed reality technologies that blend

Key differences and usage: Food service or Foodservice

In the UK the word 'catering' was often used to refer to all food and beverage operations, both the cost catering sector and the commercial sectors. Most recently, the more internationally understood two-word term 'food service' had become the main term used to refer to all food and beverage operations. The one-word term 'foodservice' has now become more associated with cost sector and contract catering. This book follows the trend of referring to all food and beverage operations as 'food service' operations, and the industry as the 'food service' industry.

About the Authors

David Graham is an Associate Head at Sheffield Hallam University within Sheffield Business School, a visiting Research Fellow at the University of Zululand, South Africa and Principal Fellow of the Higher Education Academy. He has worked across numerous restaurant and hotel businesses at culinary, senior management level and opened his own restaurant business before entering culinary and hospitality management teaching. His PhD focused on the changing nature of kitchen work through open kitchen design. He is a passionate hospitality educator and currently teaches across undergraduate, postgraduate and doctoral programmes in the UK and internationally.

Ewen Crilley is a Senior Lecturer at Sheffield Hallam University and Course Leader for UG and PG Tourism, Hospitality, Culinary and Aviation. He has extensive experience in the Hotel, Cruise and Restaurant sector, managing food, beverage, and event operations both nationally and internationally within large, branded operations, luxury hotels and small independent businesses. Ewen has worked in higher education for the last 12 years. He is currently completing a PhD in the implementation of service robots within casual dining restaurants.

Peter Cox worked in the hotel and contract catering sectors for 23 years for large international companies. He gained an BSc in Hospitality Business Management and an MSc in Events Management. He was a Senior Lecturer at Leeds Beckett University from 2003 to 2024 specialising in quality and hospitality operations management. Peter is a fellow of the Higher Education Academy, with several recent book publications drawing on his experience of managing hospitality operations and his passion for the history of British hospitality. He is a keen golf player and dedicates the book to his wife Sally.

John Cousins is a consultant, educator, and the author of a range of food service publications. His career has included hotel line management through to being Head of the Ealing Hotel School. He is a visiting professor at the University of West London and currently serves as a City and Guilds Councillor. As a pioneer of industry-based food service competitions, he contributes as a respected organiser and judge for numerous industry-based competitions. Holding high level membership of various trade and professional bodies, he has been conferred as Culinary Arts Laureate, and his awards include the prestigious Catey Award for contributions to Education and Training.

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Aims of the book

By engaging with the text, users will,

- Gain essential knowledge of the development and impact of Food Service Management 5.0.
- Identify how Industry 5.0 serves as a guiding principle for concept development and growth within the food service sector.
- Evaluate and apply various service concepts, across a range of contemporary challenges, essential to leadership roles in the evolving hospitality industry.

Whether used alongside traditional textbooks or as a standalone foundation for those new to food service operations, this book aims to help readers develop the tools to lead in the fast changing, dynamic, innovative and global hospitality environment.