INTELLIGENT AUTOMATION

Welcome to the World of HYPERAUTOMATION

Learn How to Harness Artificial Intelligence to Boost Business & Make Our World More Human

PASCAL BORNET

IAN BARKIN - JOCHEN WIRTZ

Welcome to the World of
HYPERAUTOMATION

"One of the most important books of our times! A must-read for everyone who wants to understand how Intelligent Automation is transforming our world"
~ Bernard Marr:
Internationally Best-Selling Author

"This book is essential reading for anybody who cares about the future of work"
~ Arianna Huffington:
CEO at Thrive Gobal

"This book is helping us understand the challenges and opportunities that automation, RPA, deep learning, and artificial intelligence represent"
~ Dr. Kai-Fu Lee:
Author of NYT Bestseller "AI Superpowers"

"Through their hands-on experience, the authors provide a practical guide to what can technologies achieve in businesses today"
~ Dr. Luc Julia:
Co-creator of Apple Siri

This is the **first book** on the emerging trend of **Hyperautomation**. Also called **Intelligent Automation**, this concept is a **cutting-edge** combination of methods and technologies, involving people, organizations, machine learning, natural language processing, computer vision, robotic process automation, and more.

This book is for everyone - whether you are an experienced practitioner, new to the topic, or simply interested in what the future holds for enterprises, work, life, and society as a whole.

KEY POINTS COVERED

- What is Intelligent Automation (IA)? Why has the use of IA been expanding so rapidly? What are the benefits it unleashes for people, companies, customers, and society?

- How have leading organizations been able to harness the full potential of IA, at scale, and generate massive efficiency gains?

- What are the key trends to follow, and the right decisions that leaders need to be making to thrive in today's environment?

- How can IA save 10+ million lives per year, triple our global budget for education, eliminate hunger, or help protect our planet?

Get the lessons learned from 100+ IA transformation successes (and failures). Benefit from the largest publicly available library of 500+ IA use cases by industry and by business function. And gain access to insights garnered from over 200 IA industry experts.

Click or scan to see the book's website for further resources:

Click or scan to order the book from Amazon:

All inquiries to be sent to pascalbornet@gmail.com

Click or scan to watch Jochen's Masterclass on Robotics and AI:

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Welcome to the World of HYPERAUTOMATION

**Learn How to Harness Artificial Intelligence to
Boost Business & Make Our World More Human**

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Welcome to the world of
HYPERAUTOMATION

A pragmatic and action-oriented guide to transforming
organizations with Hyperautomation

A reflection on the impact of automation and artificial
intelligence on work, society, and on our world

Pascal Bornet – Ian Barkin – Jochen Wirtz

Testimonials
(in alphabetical order)

"The most pressing question we face today - *Is this time different?* – results from the rise of Intelligent Automation. Read this book for a careful but refreshing, grounded but provocative, and cautionary yet hopeful perspective, not just on the future of work, but on the future of humankind."

Ajay Agrawal, professor at the University of Toronto, founder of the Creative Destruction Lab, and author of *Prediction Machines: The Simple Economics of Artificial Intelligence*

"The book presents a compelling case for Intelligent Automation (IA), supported by data and historical examples of change. If you needed convincing about IA, this is absolutely the book to read."

Sarah Burnett, Executive Vice President, distinguished analyst, AI & Business Transformation, at Everest Group

"Intelligent Automation is here, it is real, and it is about to change everything. This book is a must-read for all who care about both business and societal impact. It has been written by some of the top digital thought leaders on the planet. Thank you, Pascal Bornet, Jochen Wirtz, and Ian Barkin!"

Frank Casale, Founder of the Institute for Robotic Process Automation and Artificial Intelligence (IRPAAI)

"This book on Intelligent Automation is a must-read today for any organization executive – for profit or not. It describes in detail the advantages of human-and-robot interaction, emphasizing corporate, personal, and societal benefits. If you have not started to implement automation yet, this book can help be a catalyst for action. If you have already started your journey, effectively scaling automation programs will be the critical difference in winning in the Automation First era."

Daniel Dines, Co-Founder and CEO at UiPath

"AI may be the buzzword today, but how will we use this new technology to build, reshape and direct our society, businesses and organizations? In "Intelligent Automation" an answer is given. The book makes a compelling argument that we need to be smart about using AI and in doing so we need to understand the key role that humans will play more than ever. A great and thought-provoking read!"

Professor David De Cremer, Provost Chair in Management and Director of the Centre on AI Technology for Humankind at NUS Business School, National University of Singapore, and author of *Leadership by Algorithm: Who Leads and Who Follows in the AI Era?*

"Pascal Bornet, Ian Barkin and Jochen Wirtz's new book easily tops my favorites this year. While we've all read the headlines, IA still seems a mystery in terms of its impact on our job, business, enterprise, and world. What I particularly liked is that they don't just repeat the reassuring waffle of 'new jobs emerging to replace old jobs that are now automated.' Instead, they embrace the truth: Work, as we know it, will probably disappear. And yet, this book asks the questions that really count: What is our purpose in life? Is it work? Might not an automation-centric future enable us to get back to our real true purpose – to be more human? Could the end of work lead to a golden age of well-being? I'll be buying the first copies for my children so that they understand the future they are helping to shape."

Barbara Hodge, Principal Analyst and Global Digital Editor at The Shared Services and Outsourcing Network

"Automation is going to bring profound changes to our society. Intelligent Automation is the roadmap for the best version of a more human future. A future in which technology is used to augment our humanity and strengthen our connection to each other and to ourselves. This book is essential reading for anybody who cares about the future of work."

Arianna Huffington, Founder & CEO at Thrive Global

"AI is not a magic wand. Through their hands-on experience of numerous implementations across industries, the authors provide a practical guide to what technologies can achieve in businesses today. I am glad to see that this book shows that there is no such thing as Artificial Intelligence but that it's all about us, humans, understanding and learning how to use these new, powerful, tools in order to get the best out of them."

Dr. Luc Julia, CTO and SVP Innovation at Samsung, co-creator of Apple Siri, and author of *There is no such thing as Artificial Intelligence*

"A thoughtful, clear, and well-researched book! Intelligent automation is one of the most significant disruptions of the white-collar labor market since the PC. Still, it is unclear to many practitioners what technologies make up that term. The authors lay out a bright and articulate description of the technology that comprises IA and the business environment that consumes it.

"**Cliff Justice, Partner, US and Global Lead, Intelligent Automation at KPMG**

"A global ex-McKinsey consultant, a high-flying tech entrepreneur, and one of the world's leading academics at the frontier of business knowledge. These three authors came together as one team to write a powerful, insightful, and immediately useful book on the future of work, life, and society. This new book shines a light into the future we will all be sharing."

Ron Kaufman, New York Times bestselling Author *Uplifting Service*

"Bornet, Barkin, and Wirtz have earned their automation "street credentials" through years of helping clients gain benefits from intelligent automation. Therefore, they know of what they write. The authors meaningfully distinguish between artificial intelligence (AI) and Intelligent Automation (IA). While AI is ensconced with Hollywood-levels of fear and hype, IA is a realistic Wall Street-to-Main Street business strategy supported by a collection of tools to redesign knowledge work. The authors describe what IA technology actually does today. Most refreshingly, the authors recognize that the implications of IA are emergent and therefore avoid naïve predictions. I think this book will be a welcome read in any graduate business course on contemporary strategy, automation, ethics, or information technology."

Professor Mary Lacity, Director of the Blockchain Center of Excellence, at the University of Arkansas

"An absolute must-read not only if you are interested in deepening your knowledge of Artificial Intelligence and Automation Technologies but also if you care about forming your own opinion on how these tidal forces of change, at the core of the Fourth Industrial Revolution, will reshape our societies and forever change the way we live."

Frederic Laluyaux, President and CEO at Aera Technology

"This book needed to be written. Intelligent Automation is taking hold. An excellent summary and guide on how to make it work."

Craig Le Clair, Forrester Research, Author of *Invisible Robots In The Quiet Of The Night*

"This book is an insightful exploration of Intelligent Automation and the future of work. It is helping us understand the challenges and opportunities that automation, RPA, deep learning, and artificial intelligence represent."

Dr. Kai-Fu Lee, Chairman and CEO of Sinovation Ventures, President of Sinovation Ventures Artificial Intelligence Institute, and New York Times bestselling Author *AI Superpowers*

"This well-articulated book provides excellent insights into Intelligent Automation technologies, their early and potential applications, and their impact on work, business, and people. I especially enjoyed the sizing and opportunity sections. The world is at the cusp of unprecedented transformation."

Alex Lyashok, Co-founder and CEO at Workfusion

" This is an excellent book to understand how AI is enabling the era of Intelligent Automation and how it is transforming the future of work. Bornet, Barkin, and Wirtz have done an excellent job of capturing this moment of a major technological change and its impact on our society. A must-read for anyone involved in the digital transformation of today's enterprises."

Shariq Mansoor, Founder and Chief Technology Officer at Aera Technology

"One of the most important books of our times! A must-read for everyone that wants to understand how Intelligent Automation is transforming our world and why this means that we have to completely rethink the nature of business and the concept of work as we know it today."

Bernard Marr, Internationally best-selling author and strategic business & technology advisor, Author of *The Intelligent Company*

"In this thoughtful book, the authors make the indisputable point that the upside of IA on the future of work outweighs any downside. The book provides a great perspective for any organization looking to understand better how AI will augment, not replace, the human experience."

Asheesh Mehra, Co-founder and CEO at AntWorks

"Humans are generally creatures of habit. But we are not made for repetition. The world of Intelligent Automation (IA) is giving us the opportunity to refocus on our creativity; it is opening us up to an infinite realm of possibilities."

Sylvia Saw McKaige, Founder and CEO at Salween Group

"Bornet, Barkin and Wirtz weave together a masterful and optimistic collection of insights that give us a genuine vision of what our automated world will look. In today's business environment, nothing is more valuable than human insight, empathy, creativity and energy. The authors tell the story of how IA gives us the time and confidence to hone these qualities as routine, low value and repetitive work is digitized. This book is also more relevant than ever, with the current Pandemic Economy and our huge reliance on digital technologies to keep businesses, school and governments functioning."

Phil Fersht, Founder and CEO, HFS Research

"This book brilliantly demonstrates the full potential of IA to impact our society, save millions of lives, and conserve trillions of dollars. Anyone interested in these topics simply cannot afford to pass this book up!"

Leonard A. Schlesinger, Baker Foundation Professor-Harvard Business School, President Emeritus-Babson College

"Bornet, Barkin, and Wirtz have been able to brilliantly describe and provide guidelines to maximize the impact and benefits of Intelligent Automation. They present this analysis at employee, customer, company, global economy levels, and even from a society point of view. It is rare to read a book about technology which includes such diverse levels of analysis and reading. As an outcome, this creates a rich book useful and accessible to a wide variety of audiences. This guidebook is instrumental for success in the Fourth Industrial Revolution."

Klaus Schwab, Founder and Executive Chairman at the World Economic Forum

" Leaders of core technologies, 'back-office operations,' and revenue/customer-facing business functions alike can all benefit from the authors' articulation of how Intelligent Automation can – and will – in so many ways transform the global human condition."

Prag (Pragnesh) Shah, Global Head Experience & Innovation at Princess Cruise Lines, Ltd.

"This book is right on the spot; the future impact of IA depends on human understanding its values and capabilities to build the entire ecosystem that will change the world. The impact of AI and automation is the black swan of our generation. The book helps leaders and curious people to understand the situation better and redefine their approach to ensure the brightest future."

Harel Tayeb, CEO at Kryon

"Can you imagine an organization where everything that can and should be automated is? That's the philosophy of Hyperautomation. This field guide is essential reading as you prioritize your exploration and exploitation of the 'art of the practical' to help you automate activities optimally at speed."

Cathy Tornbohm, VP Distinguished Analyst at Gartner

"A must-read book that not only enables a deep understanding of Intelligent Automation but also presents its incredible potential to achieve a higher societal purpose."

Tiger Tyagarajan, President and CEO at Genpact, and Board Member at Catalyst

"A powerful assessment of the promises and practicalities, *Intelligent Automation* is a timely guide replete with examples and advice culminating in a detailed, sane mapping of where all this could lead."

Leslie Willcocks, Professor at London School of Economics, Co-author of *Robotic and Cognitive Automation: The Next Phase*

Table of contents

Introduction: Understanding IA . . . 23

Part one: The promise of IA for a better world 53

Part two: IA technologies explained 103

Part three: How organizations succeed in implementing IA 161

Part four: Reinventing society with IA. 253

Conclusion: Our world urgently needs more IA!. 299

Asset: IA use cases library 311

Appendix: List of IA experts who took part in the survey. 397

Appendix: Artistic inspiration from IA. 403

Index. 409

About the authors

Pascal Bornet is a recognized global expert and pioneer in the field of intelligent automation. He is passionate about the capacity of artificial intelligence and automation to make our society more human. Bornet is a senior executive with 20+ years of experience leading digital business transformations and creations. Over the last ten years, he has founded and led the "Intelligent Automation" practices, first for EY (Ernst & Young) and then for McKinsey & Company. These lines of business delivered high-impact results to corporate clients across industries through innovation, research, strategic investments, and cutting-edge technology developments. In these contexts, he successfully led hundreds of intelligent automation transformations at scale across industries and functions. He has also created and managed a proven track record of distinctive, innovative solutions, technologies, and IP portfolios.

Bornet is a recognized author, thought leader, lecturer, and speaker on artificial intelligence, automation, and the future of work. He is also an influencer on the same topics, elected Top Voice in Technology 2019; he has more than 300,000 followers on LinkedIn and Twitter. Bornet holds an MBA from the University of California Los Angeles, an MBA from the National University of Singapore, a Master of Science in Management from EM-Lyon/Saint-Etienne, as well as several certifications in Data Science and Finance (US CPA).

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Barkin is a seasoned leader and innovator in Digital Operations, Robotic Process Automation (RPA), Intelligent Automation, Business Process Outsourcing (BPO), and the Future of Work. He is the author of popular LinkedIn Learning courses on RPA and the leadership best practices in the age of Intelligent Automation. He has a proven track record of digital transformation solution development and sales of complex global engagements. Barkin holds an MBA from MIT Sloan School of Management, and a BA in Economics and Psychology from Middlebury College.

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Dr. Wirtz has worked with international consulting firms, including Accenture, Arthur D. Little and KPMG, and major service firms around the world. He has been an angel investor in a number of start-ups, including Accellion (www.accellion.com, exit in 2020), TranscribeMe (www.TranscribeMe.com) and Uplifting Service (www.UpliftingService.com). Dr. Wirtz received his Ph.D. from the London Business School. He holds a professional certification in banking. Originally from Germany, Professor Wirtz spent seven years in London before moving to Asia. Today, he shuttles between Asia, the US, and Europe.

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Key contributors to the book

We would like to thank the following people, without whom we would never have been able to present such a thoughtful and informed perspective on the impacts of Intelligent Automation on the worlds of work, life, health, education, culture, and more (in alphabetical order):

Ralph Aboujaoude Diaz

Key contribution: key success factors, RPA, IA

David Ashton

Key contribution: reinventing society with IA

Sebastien Bourguignon

Key contribution: blockchain

Francis Carden

Key contribution: low-code, no-code, artificial intelligence

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Key contribution: overall structure of the book, key insights

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Key contribution: artificial intelligence, machine learning

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Key contribution: reinventing education with and for IA

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Key contribution: machine learning, IA use cases

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Key contribution: RPA, IA use cases

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Key contribution: overall structure of the book, key insights

Gaurav Sharma

Key contribution: RPA, IA use cases

Thomas Zakrzewski

Key contribution: blockchain, Internet of Things

Preface: Why this book?

While Intelligent Automation (IA) has already started to become a pivotal lever to enhance customers' experience and boost business productivity, very little has been written on it. The first sources were a blog[2] written by Bornet in early 2017, an article by McKinsey,[3] followed by a standard by IEEE,[4] all referenced later in this book. In 2018, a reference book[5] by Lacity and Willcocks covered some aspects of IA, together with other themes. Since then, most of the literature available today has come from technology vendors in the form of articles, white papers, or implementation use cases. But, while we have seen many books in the fields of artificial intelligence, machine learning, or robotics, a **comprehensive reference guidebook** had never yet been written on the topic of IA. Hence, it seemed critical to us, the authors, to objectively document and build the latest insights on this field in a first reference document.

This also explains why working on this book has been challenging, building the content almost from scratch; it took us more than a year to write this book. We have tried to **concentrate** the **wealth of experience** not only from ourselves but also from a large and growing

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2   Bornet et al., 2017. "Intelligent automation is about creating synergies between RPA, cognitive, chatbots and AI". https://www.linkedin.com/pulse/from-robotic-process-automation-rpa-artificial-ai-journey-bornet/

3   McKinsey, 2017. "Intelligent process automation: The engine at the core of the next-generation operating model". https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/intelligent-process-automation-the-engine-at-the-core-of-the-next-generation-operating-model

4   IEEE Std. 2755-2017, IEEE Guide for Terms and Concepts in Intelligent Process Automation.

5   Mary C. Lacity and Leslie P. Willcocks, 2018. "Robotic Process and Cognitive Automation - The Next Phase".

community of IA leaders from diverse organizations, geographies, and industries.

The primary purpose of this book is **to share our passion** for this new concept called IA that we strongly believe can improve our world significantly. We would like to **inform**, **inspire, and educate** more people on the power of IA. As we will demonstrate in the book, it is critical that we expand the uses of IA to help solve the most pressing issues of our world and create an opportunity to build a new, more human society.

On top of this, it seemed essential to us **to establish IA as a field**, with its own frameworks, use cases, methods, and critical success factors. We have tried to document our knowledge, drawing from years of failures and successes in designing and implementing IA. Nevertheless, this work is not meant to carve these frameworks in stone. This is just a sketch, a beginning; it provides a foundation for further and broader evolutions of our field. A field has its practitioners. We dedicate this book to them and to those who are joining this growing community every day. A mere five years ago, our roles as Intelligent Automation practitioners did not exist. In July 2020, searching for "Intelligent Automation" on LinkedIn, we could find more than 145,000 profiles mentioning it in titles, roles, or job descriptions. It is impressive how quickly the worlds of consulting, services, and work have changed.

In this book, we also wanted **to clarify the purpose of IA**. We have often heard IA professionals being referred to as "job killers": people who are automating the work of other people, causing them to be laid off, just for the sake of generating productivity gains. With this book, we want to clarify that not only does IA not displace roles,

but it creates more, and the new ones are more exciting than the legacy ones. We demonstrate how it helps workers to find fulfillment in their work and augment their capabilities, and could help bring a renaissance to the future of work.

Several technology vendors pretend that IA is a universal solution that is cheap, easy to implement, and delivers a high return on investment. This is not true. In this book, we have been careful in painting a more **neutral picture** of IA, not only depicting its benefits but also presenting its limits and challenges. We have built upon these points to offer recommendations for fair and successful uses of IA.

Over the last several years, we have witnessed that **technological innovation is rapidly accelerating**. Thanks to advances in the fields of process automation and machine learning, the boundaries of what can be identified, interpreted, and automated are continually being pushed. For example, it used to take months to design and write automation scripts able to perform work. With the help of deep learning, we can now achieve this in hours. This enables automation programs to learn patterns and behaviors by themselves, without the need for a developer to write code. With that, we grow ever closer to IA being generated by technology (explained in Part Three of the book) involving incredible scalability.

These advancements will have **a significant and disruptive impact on the world of work**. With such powerful technologies, an increasing amount of the work performed by millions of people across the globe in captive and outsourced back-office functions (e.g., finance & accounting, supply chain & logistics) might soon be automated. Furthermore, can you imagine the impact of such a technology on

the three million U.S. call center professionals[6] and the many millions more across the world? What else could have such an impact on the 3.5 million truck drivers in the US and across Europe where self-driving truck pilots are already underway?

It seemed crucial to us to document and share the imperatives that need to be in place to **prevent the negative impacts of IA at scale** on our societies. It is not a matter of "if" it will happen; it is a question of "when." We leveraged this book to convey a warning message to companies and governments. In order to capture the full potential of IA at scale, there are imperatives to anticipate potential issues and get prepared.

Finally, we believe **it is timely**, as our world is slowly recovering from the COVID-19 crisis. This book aims at guiding leaders in improving the resilience of their organizations and building the capacity to anticipate and overcome future similar downturns.

We hope you will enjoy this read and that it will shift your thinking and action!

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6   King White, 2015, "How Big is the U.S. Call Center Industry Compared to India and The Philippines?". https://info.siteselectiongroup.com/blog/how-big-is-the-us-call-center-industry-compared-to-india-and-philippines

Additional book assets available online

We have also built an extension of this book in the form of **a dedicated website**. It not only introduces the book, but also allows our readers to ask questions and keep connected with the latest insights through a blog and regular newsletters.

Website: www.hyperautomationbook.com or www.intelligentautomationbook.com

On the same website, for people who are reading this book on paper, we provide **digital access to the footnotes via this link:**

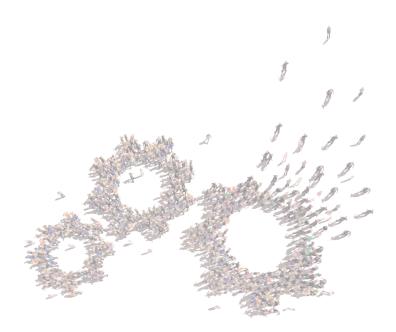https://intelligentautomationbook.com/footnote/

The purpose is to create a unique and interactive reading experience. With the book in their hands, readers are able to open the footnote links on their smartphone or tablet in just one click, **taking advantage of the videos and other articles in real time**. We recommend this

to fully enjoy watching the demos and reading the additional digital content that we share throughout the book.

Additional information about the book and disclaimers:

- The profits from this book will be donated to a charity that supports education about new technologies for people in need.

- The ideas reflected in this book are solely the views of the authors. They do not necessarily reflect the views of any company or organization.

- The funding and writing of this book have not been associated with any organization. This is a warranty of the neutrality of the views provided by the authors.

- The authors have chosen to keep the book short, easy to read, and accessible to a broad audience. Hence, they have deliberately decided to highlight key concepts and themes across the wide spectrum of IA, rather than enter into the detail of each of the topics covered. They have done their best to provide information sources so that interested readers can explore further.
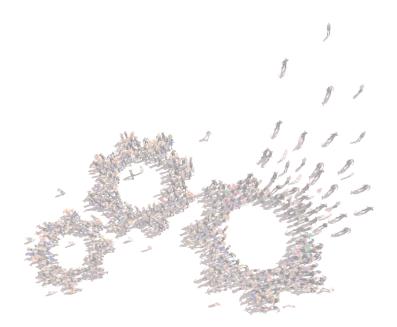
INTRODUCTION:
UNDERSTANDING IA

PART ONE:

THE PROMISE OF IA FOR A BETTER WORLD

"The technology you use impresses no one. The experience you create with it is everything."

Sean Gerety, user experience expert

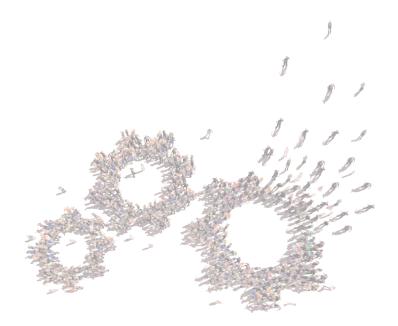# PART TWO:

IA TECHNOLOGIES EXPLAINED

PART THREE:

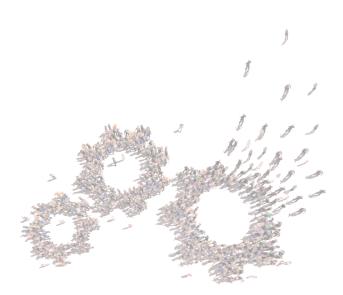# HOW ORGANIZATIONS SUCCEED IN IMPLEMENTING IA

"The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency."

Bill Gates

PART FOUR:

REINVENTING SOCIETY WITH IA

CONCLUSION:

OUR WORLD URGENTLY NEEDS MORE IA!
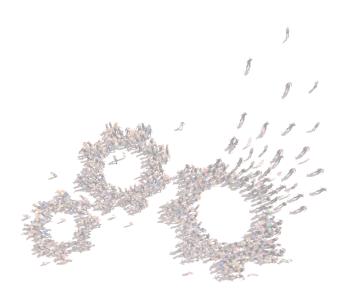
ASSET:

IA USE CASES LIBRARY

This library includes **more than 500 use cases**. At the time of printing this book (October 2020), it is **the largest list of use cases currently publicly available**.

A s described in Part Three of the book, a critical success factor to kick off an IA transformation is to identify, assess, and prioritize the business use cases. To ease this process and make this book as pragmatic as possible, we have built the largest list of use cases currently publicly available. **It includes 500+ use cases across industries and business functions**. The main source has been our own experience, which we have completed by some creative thinking. For example, we have worked on transposing some proven successful use cases from one industry or business function to another.

The purpose of this list of use cases is to stimulate creativity and demonstrate the vast amount of opportunities to implement IA in literally all functions and industries.

We have chosen to detail the use cases at a granular level to fit with most of the organizations' contexts and make these use cases as actionable as possible. Nevertheless, as presented in Part Three of the book, the leading practice is to design and implement IA based on end-to-end processes. To reach this objective, we recommend that you collate together the use cases of the business activities belonging to the same end-to-end process.

APPENDIX:

LIST OF IA EXPERTS WHO TOOK PART IN THE SURVEY

A survey about Intelligent Automation was administered in December 2019 on the web. It collected views on IA: definition, scope, leading practices, expected future, and impact on our society.

We would like to thank all of the passionate and knowledgeable members of the global Intelligent Automation community who contributed to our research. With their input, we are able to present a more informed and validated picture of the state of adoption and readiness.

Those contributors kind enough to share their names are listed below (alphabetical by first name):

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Adam Österman	Gowtham Chilakapati	Lonneke Vink	Saif
Aditya	Gururaja	Lucas Reis	Saikrishna
Adwait Ullal	Gustavo Moura	Maciej Krezolek	Sajeev Nair
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