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978-1-107-04935-2 - Creating New Markets in the Digital Economy: Value and Worth

Irene C. L. NG

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## Creating New Markets in the Digital Economy

*Creating New Markets in the Digital Economy: Value and Worth* looks at how digitisation is radically changing the way we buy and experience products and services. Sharing her unique perspective of both business and academia, Irene Ng examines the implications of digital connectivity, including the need to design and scale future business models to better fit 'lived lives', creating value as well as increasing worth so that new markets can emerge. The book provides a conceptual framework and practical advice to equip readers with the knowledge they need to develop future products and services that take advantage of connectivity and serve contexts better. With its accessible language, numerous case examples and illustrations to illuminate challenging concepts, this book is an important resource for business leaders, entrepreneurs and policy-makers, as well as students of service science, business and engineering.

IRENE C. L. NG is Professor of Marketing and Service Systems and Director of the International Institute of Product and Service Innovation (IIPSI) at WMG, University of Warwick, UK. She was an entrepreneur for sixteen years as CEO of SA Tours, one of the largest tour operators in Southeast Asia, and the founder of Empress Cruise Lines, which she built into a venture worth US\$250 million in annual turnover when she sold it in 1996. Since becoming an academic in 1997, Professor Ng has received global recognition for her work in value, new business models and service systems, with twenty-two journal articles, three books and national appointments such as the ESRC/AIM Services Fellow in 2008 and ESRC/NIHR Fellow in 2009.

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## Value and Worth

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*For my Father*

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## Preface

This book articulates a thinking journey, one that I embarked on since beginning my academic vocation in 1997, to get to the bottom of the economic notion of ‘utility’. At that time, I was driven to understand how, when and why people purchase and how firms could price better; these became the subject of my first book, *The Pricing and Revenue Management of Services*.

This journey has since evolved into a quest to understand the fundamentals of value and the markets created from it. On this journey, I spent some time with sociology where I considered the human agency, identity and practices to create value; systems thinking, for a holistic view of value creation; business models, in terms of capturing, proposing and creating value; and information and communications technology (ICT), which I felt would inform future contexts for value creation. I also spent time with engineering, researching into the design of offerings that could potentially create value, and this became the subject of my second collaborative and edited book, *Complex Engineering Service Systems: Concepts and Research*.

While I don’t believe the journey is complete yet, it has helped me develop a deeper understanding of how these different destinations come together to inform a very different future. It has also helped me reach certain conclusions about my own discipline of marketing, which I present as a postscript to the book.

I have also decided to write this book as a personal account, documenting much of what I have been thinking about from observing human behaviour, doing research and working with companies big and small over the past fifteen years. The theories I have drawn on are the foundations upon which many of my ideas

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and thoughts have been made possible. Wherever I can, I have created footnotes so that those interested in delving deeper may read further. I have, however, chosen a style of writing that enables me to inform the non-academic, the advanced practitioner and the entrepreneur. This means that I may need to explain some basics, but where I do so, it is to build upon that understanding to communicate further thinking. By creating a progressive synthesis of research with practice, I can also serve future researchers in this domain.

One of the motivations for writing this book is the advent of the 'Internet of Things' (IoT). I have increasingly felt the need for work in this space to be grounded on more than just data sets resulting from connected devices and sensors, just because it is possible. I have no quarrel at all with big data and analytics, but I do feel the need to theorise better so as to inform the continued advancement of IoT applications and new markets arising from them.

Theorising exposes the 'why' question (i.e., why should we have connected things?), and facing up to that question holds the key to how digital connectivity can improve the quality of our lives. In theorising, I choose to take an approach that begins with the individual, and by doing so, I hope to promote a digital technology focus that begins with how we live our lives, rather than starting with challenges of machine-to-machine communications. There is a tendency when we focus on smart or connected firms, technologies, cities and/or communities, to forget the person.

Digital connectivity now allows for greater voice, empowerment and action of the person individually, and for them to get into groups for collective, powerful and yet diverse voices. It allows us to personalise everything for ourselves deeply and to live unique individual lives even while many of these technologies are fully scalable to offer into the market. The notion of firms creating viability from serving only a subset of their customers (the segmentation issue) and having to trade off product attributes, is increasingly becoming

archaic. The new way of thinking is how to allow for deep personalisation for all individuals while benefiting from increasing returns to scale.

Considering how this might be possible is the focus of this book. It will not come from existing mindsets. It will come from liberating the mind and considering how the good use of digital connectivity, overhauling the business model and redesigning a hybrid product and service offering could empower, rather than passively serve, customers. In a rapidly advancing world of digital technology, staying with the status quo is not an option. Disruption is never far off and no firm is too big to fail.

With an empowered and actionable voice, we are beginning to reinvent our roles both as customers and as employees. This creates tensions for those who have managed and controlled from some centralised location as they see more heterogeneity, variety and complexity in their 'system', be it the market, the firm or the business. Their perception is that the system is becoming more fractious, and this threatens its stability and in turn, their ability to manage and control. They are not wrong. What they do need to understand though is that empowered individuals will not be going away. This book hopes to bring some systematic insights into how we could see them as opportunities, and to tap into personalisation by individuals as customers of new markets.

The research is continuing and I am ever grateful for those who have contributed to my team's passion in service systems and value research. The book itself may still be too academic and abstract for some, while others may see immediate connections. My editors and I have discussed this several times and I don't think we can ever get it right. Telling it in this more abstracted way is necessary because I would like to ensure that whether you are looking at it from different sectors, firms, products or services, the lessons learnt are the same and to do that, this book must inevitably be more theoretical. Yet, I have endeavoured to use examples and anecdotes to illustrate these abstract concepts as best I can, so that they can be

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made more concrete. I must also say that this a 'how to think about' rather than a 'how to do' book. I will leave it to the many consultants out there to operationalise this into concrete action to assist firms.

We live in an age where a few centuries of research have yielded many insights, but these are not often put together in meaningful ways. Particularly in business, we have relied on the collaboration of academics, consultants and practitioners to translate good academic research into action by first translating the research into teaching materials, and then imparting them within the classroom. Yet, as our knowledge evolves, I have found that we are increasingly teaching disciplinary components but not their connections, with the belief that connections sit in practice.

This lack of academic synthesis to inform both the distinctiveness and connectiveness of disciplines is a great shame because the potential for knowledge is already there, but it seems inaccessible or is seen to be irrelevant as each discipline creates its own jargon. Synthesis is therefore a form of representation that allows us to move forward in our learning. There is theory in synthesis because the mere act of synthesising disciplinary knowledge uncovers both the consistencies and contradictions.

The objective of the book is simple. If you read it and learn something that will enable you to go on to innovate and give the world something special, I have achieved my purpose. As the director of a technology-focused innovation institute, I am passionate about helping technologists learn about value and markets, and I am always happy when they create pathways to commercialise their inventions. I have great faith in human creativity and inventiveness, especially when applied to engineering and digital technology. I find equal joy in doing the research, writing papers and books as well as in mentoring start-ups and bringing them to market.

Humanity is facing many great challenges – looking after our ageing population, keeping our children safe, providing clean water to so many who have none, improving our health, leading more fulfilling lives and creating more sustainable approaches to growth.

We need better technologies that work well with lives. My only lament is that while there are many programmes out there to help entrepreneurs succeed, there are very few that try to help technologists think about how their particular bit of ‘thing’ that they have made could create markets and change the world, or not. My approach aims to help those who are looking for some of these answers.

By doing so, I hope to address what Stephen Markham and his co-authors call the ‘valley of death’ between incubating a technology start-up and achieving scalable revenues. I do so by building a metaphorical bridge across that valley, which I believe comes about from understanding a particular technology’s role in creating value and worth from the perspective of those who would buy and use them within their value-creating systems. Armed with this knowledge, technologists can construct their business models to be more successful in bringing their innovations to market. Currently, we rely very much on the goodwill of existing entrepreneurs, many of whom are brilliant and have done much good but whose knowledge, unfortunately, is not well codified.

Business researchers have always struggled with how to advise about the future when the only information which can be obtained is on the past and the present. My personal solution is through theorising. They say hindsight is always 20/20, so a rear-view mirror can help us drive forward only when we theorise about what world could be in front of us. Theorising is a difficult skill but one which we must promote and preserve. Theorising is to piece together the logic created from the research and practice of the past, and propose what might be possible in the future. In a world of radical and disruptive technologies, data alone is unable to predict a future. Good theorising not only can predict possible futures, but can help us invent them. It helps us create the art of what’s possible. Theorising helps children with imagined possibilities, just as it helps firms with new and radical innovations.

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The world needs its theorists just as much as we need our empiricists. We must commend Einstein for theorising on relativity as much as we admire Eddington for proving it. We should be intrigued by Higgs theorising that a particle now called Higgs-Boson could exist, and applaud the particle physicists that search for it. In business as well, we need our theorists to propose what could be possible and our empiricists to prove or dispel them. This book therefore takes on the research that has been conducted and theorises on how we can think of new things, new business models and new markets of the future. By theorising, thinking and tinkering with what we know now and logically synthesising relevant research and practice, I hope to describe not only why and how new offerings come about, but how we can think of inventing them and paying for them so that even better offerings could be produced.

In writing this book, I have also been informed by my own use of digital technologies. Many who know me will know I am inseparable from my devices. I interact socially on Facebook, LinkedIn, Google+ and Twitter, and I often blog. I communicate on Facebook messenger, Skype, WhatsApp, Viber, email and text. My entire wardrobe is on an app on my iPad that enables me to choose what I wish to wear, matching colours and looks, without getting out of bed. It allows me to have a wardrobe that, if physically displayed, would be impossible unless I had a million-dollar mansion with a walk-in wardrobe the size of my current house. As a fan of Bordeaux reds, my wines stored both with my agent and at home are also categorised and accessible through an app. This is the same with money, stocks and shares. My running routes, pace and timings are collected through the RunKeeper app. Although not a good runner, I like being supported by my friends and the app allows my Facebook and Twitter friends to follow my runs (I appear as a little dot on their screen). Through the app, I can also take on live 'cheers' from friends when I participate in live events such as 5 km and 10 km races and half-marathons.



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My life involves trying to manage a family and a research team, leading an innovation institute and travelling around the world. Technology plays a big part in allowing me to do all this, and yet feel serene enough at every location to write a book. More than two-thirds of this book was written on my iPad on planes, airports, beaches, shopping malls, cafes and in bed. When I am done, every change is uploaded onto the cloud where my editors and assistants can pick up the manuscript and work on it wherever they are and whenever they wish. Sketches were 'pencilled' by me using the Penultimate app and automatically uploaded onto Dropbox where the graphic artist can see them as her job list to create the comic art.

Of course, my family complains about my 'unholy' attachment to my devices; one Christmas, they created an 'Irene's iPad' persona on Facebook which proceeded to become 'friends' with all my Facebook friends, describing its relationship with me as being 'complicated'. On the flip side, with adult children scattered around the world, digital connectivity has helped us stay close as a family because we are able to communicate, interact and play across time and space. Playing has been a wonderful feature of technology and it is not discussed enough when we look at family and social lives.

I like to think that I live a socially and culturally rich family and work life, very much enabled by technology. I push technologies to their limits to make them better in the 'mangled practice' of my digital and non-digital life, so that I can be more effective in what I wish to do (my thanks to Will Venters who introduced me to that term!). We often fail to appreciate the satisfaction of organising, categorising and modularising our lives (which I cover in Chapter 7), and I am a hopeless geek in this regard. My own life epitomises deep personalisation of digital technologies and I must admit to a selfish reason for writing this book; I hope it will spur the creation of better offerings I am willing to buy.

Finally, it is impossible for me to cover all of the impacts and activities of the digital economy. I have structured this book somewhat to cover a subset of what I believe is necessary to

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communicate my points. I have taken from many disciplines, and apologise if I have not done justice to the depth of each. This is not a textbook. It aims to be primarily interesting and only secondarily informative. I hope you may find it helpful for your endeavours.

During the waning days of my doctorate life – which lasted six years and saw the creation and destruction of seven mathematical economic models – my PhD advisor said that I could never be a good theoretical modeller in economics. I saw too many parameters at work. Parsimony would elude me, he said.

I agree completely. In a sense, my years of practice and entrepreneurial activity have ‘corrupted’ me from pure reductionistic economics. I saw too many connections between concepts, ideas, disciplines, practice and theory, and I could hold many of them together in my head for a long time until it all made sense. As a consequence, my own academic identity, in terms of the discipline to which I belong, escaped me for many years. I have finally decided that if this is what I am, I would let it be an asset, rather than an impediment.

I hope, after reading this book, you will agree.

## Acknowledgements

I am immensely grateful for the generosity of my academic and business colleagues who have helped me with my thinking over the past fifteen years. They have given me ideas, concepts and words, and while I try my best to credit them and their work, I am very sure I have left out many. If I have not acknowledged your work, please contact me and I would be happy to include your reference in the relevant section for the next edition.

I have many to thank. The RCUK NEMODE+ network of academics who have been incredibly generous with ideas, insights and pointers on what I should read, and where I could do more research. My collaborators on the EPSRC SeRTES and EPSRC TEDDI C-Aware grant projects who have helped me think through some of the research questions in this space. My entrepreneurial friends who constantly regale me with tales of industry challenges so that I am forced to think through the relevance of some of my own work, keeping me grounded on making a difference. My managerial colleagues who are untiring in their pursuit of knowledge and their constant mission to change their companies for the better. And the many who have funded my work directly or indirectly.

I give special acknowledgement to the ESRC, EPSRC and RCUK Digital Economy programme who have funded my time and research that helped me think through many of the concepts in this book. I must also thank my Twitter followers and Facebook friends who have been very helpful in providing digital stories and cases to illustrate this book.

More specifically, my thanks go to Yin F Lim, a dear friend whom, after twenty-two years, has learnt to tolerate my

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