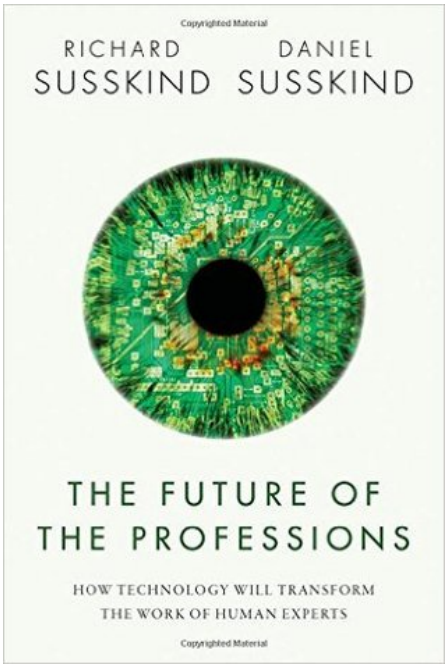

The Future of the Professions: How Technology Will Transform the Work of Human Experts

Richard Susskind , Daniel Susskind

The Future of the Professions: How Technology Will Transform the Work of Human Experts

Richard Susskind , Daniel Susskind

The Future of the Professions: How Technology Will Transform the Work of Human Experts Richard Susskind , Daniel Susskind
This book predicts the decline of today's professions and describes the people and systems that will replace them. In an Internet society, according to Richard Susskind and Daniel Susskind, we will neither need nor want doctors, teachers, accountants, architects, the clergy, consultants, lawyers, and many others, to work as they did in the 20th century.

The Future of the Professions explains how 'increasingly capable systems' -- from telepresence to artificial intelligence -- will bring fundamental change in the way that the 'practical expertise' of specialists is made available in society.

The authors challenge the 'grand bargain' -- the arrangement that grants various monopolies to today's professionals. They argue that our current professions are antiquated, opaque and no longer affordable, and that the expertise of their best is enjoyed only by a few. In their place, they propose six new models for producing and distributing expertise in society.

The book raises important practical and moral questions. In an era when machines can out-perform human beings at most tasks, what are the prospects for employment, who should own and control online expertise, and what tasks should be reserved exclusively for people?

Based on the authors' in-depth research of more than ten professions, and illustrated by numerous examples from each, this is the first book to assess and question the relevance of the professions in the 21st century.

The Future of the Professions: How Technology Will Transform the Work of Human Experts Details

Date	:	Published January 1st 2016 by Oxford University Press, USA (first published August 25th 2015)
ISBN	:	9780198713395
Author	:	Richard Susskind , Daniel Susskind
Format	:	Hardcover 256 pages
Genre	:	Business, Nonfiction, Science, Technology, Economics, Politics

Work of Human Experts Richard Susskind , Daniel Susskind

From Reader Review The Future of the Professions: How Technology Will Transform the Work of Human Experts for online ebook

Paul Fulcher says

Richard and Daniel Susskind are a father and son team. Between them they have written 8 previous books focusing on the future of the legal profession in a technological age. In The Future of the Professions they turn their attention more widely to the professions in general.

Their overall conclusion, rather stark for anyone working in the professions, but which the Susskind's regard as a very positive outcome:

"Increasingly capable systems will bring transformations to professional work that will resemble the impact of industrialisation on traditional craftsmanship [...] giving birth to new ways of sharing practical expertise. In the long run [...] our professions will be dismantled incrementally."

To declare an interest, I'm an actuary, one of the professions that falls within their scope. Although they point out frequently that many professionals "argue that what we say applies right across the professions except in one field - their own", so I will resist that temptation, albeit I frequently found myself falling into the trap.

By far the strongest part of the book is the first 40 pages (Chapter 1), an excellent summary of what the professions are, the reason for their existence and the "grand bargain" with society.

They don't attempt a rigorous definition of profession, but do identify four overlapping similarities:
1. Specialist knowledge
2. Admissions depends on credentials
3. Activities are regulated - both granted exclusivity by law, and internal standards and codes of conduct
4. Bound by a common set of values

[Although oddly one of the examples they most commonly use to illustrate their point are the "professional services" firms, including management consultancy, which seems to be not to feature many of these points.]

And they explain the contract with society thus:

"In acknowledgement of an in return for their expertise, experience, and judgement, which they are expected to apply in delivering affordable, accessible, up-to-date, reassuring and reliable services, and on the understanding that they will curate and update their knowledge and methods, train their members, set and enforce standards for the quality of their work, and that they will only admit appropriately qualified individuals into their ranks, and that they will always act honestly, in good faith, putting the interests of clients ahead of their own, we (society) place our trust in the professions in granting them exclusivity over a wide range of socially significant services and activities, by paying them a fair wage, by conferring upon them independence, autonomy, rights of self-determination and by according them respect and status."

Interestingly, they point out there are other ways this could have been achieved, quoting Andrew Abbott (The System of Professions) "the generalised expertise of the imperial civil services, the lay practitioners of

certain religious groups, the popular diffusion of expertise characteristic of micro computing" [NB this quote dates from 1998, hence the language in the last example].

The remainder of the book sets out what the authors perceive as the problems with this model and their vision for the opportunity in the 21st Century. As other reviewers have noted, this part shares the common failings of many similar books - saying in 250 pages what could easily have been said in 30, largely to pad out the book to the length that justifies the cover price. For example Chapter 2 consists of a tedious 50 page dump of almost any current example they can find across different fields of systems encroaching on the professions.

They also talk a lot about "research" and "the evidence we have uncovered", although a lot of this seems to be "reflecting on the writings of others" and anecdotal information from discussions.

However, the kernel of their hypothesis is worth study, as they argue:

1. Professions are purely a means to an end, not the end itself, and simply "an artefact that we have built to meet a particular set of needs on a print-based industrial society" i.e. the best way for providing "practical expertise" (which they define as formal-knowledge+know-how+expertise+experience+application skills) .

While the availability of printed books "gave rise to an explosion in the quantity and complexity of recorded information", this actually gave rise to the professions to "make sense of, manage, and apply" this knowledge. But in the fourth wave of information (oral to script to print to information technology), the same set-up is no longer necessarily appropriate.

2. "Our primary need is only for a reliable outcome ... Were it not for recipients' limited understanding and corresponding need for knowledge, there would be no trust required, no reassurance desired, no quality to control, no services or behaviours to regulate."

I.e. the whole professional ethos itself is merely a means to an end. They are particular harsh on the "shroud of mystery [that] is thrown over certain institutions, protecting them from challenge and change. And those who mystify use language, custom, clothing, and rhetoric as the tools of their trade"

3. But "levels of access and affordability to the practical expertise that the professions provide fall short of acceptable." Hence there is a moral imperative to widen this access and transform (even end) the professions.

4. Knowledge unlike physical goods can be consumed by many people ("non-rival") indeed its re-use often makes it more valuable. This overcomes a lot of issues with wider sharing of this practical expertise that otherwise arise ["the tragedy of the commons" (Garrett Hardin)].

5. Information technology offers increasingly better, and different, ways to disseminate practical expertise other than via the professions. And this isn't simply a case of automating what they do and making professionals more efficient, but bypassing them altogether "not by copying high-performing people but by exploiting the distinctive capabilities of new technologies, such as massive data-storage capacity and brute-force processing."

They regard this attempt to computerise human thinking as a failing of the first wave of expert systems from the 1980s, with which they themselves were involved ("in the professions certaintly, thirty years on, there are far fewer operational expert systems of the sort we had developed than we expected"). They quote Robert Winston "There are lots of ways of being smart that aren't smart like us", and Richard Feynman "it is not

necessary to understand the lever system in the legs of a cheetah, in order to make an automobile with wheels that goes very fast."

They aren't forecasting change overnight, but are forecasting that when (and in their view it is when, not if) change comes, it will be fundamental:

"We regard the professions as likely to last longer in their current form than most other occupations...we cannot emphasize strongly enough that we are not predicting that the professions will disappear over the next few years. We are looking decades ahead...[but] we foresee that, in the end, the traditional professions will be dismantled"

The several different models they envisage include:
- networked experts
- para-professionals
- knowledge engineering
- communities of experience
- embedded knowledge
- machine-generated expertise

Overall the authors regard this future not as a negative, but as a good think, spreading the practical expertise currently generated by the professions (in law, tax, audit, actuarial work, education etc) much more freely. They do raise some concerns of their own e.g. that "somehow, in some circumstances, it feels inappropriate, or wrong, to abnegate responsibility and pass it along to a machine, no matter how high-performing.". But they argue such cases are very rare and represent only a fraction of what we would regard today as professional work.

The other, tangentially related, issue which they touch on briefly, but I suspect not enough, is the strong preference humans still seem to have for experts over algorithms. A recent Wharton paper covered this [my own reference, not referenced in the book]:

https://marketing.wharton.upenn.edu/m...

"Research shows that evidence-based algorithms more accurately predict the future than do human forecasters. Yet when forecasters are deciding whether to use a human forecaster or a statistical algorithm, they often choose the human forecaster. This phenomenon, which we call algorithm aversion, is costly, and it is important to understand its causes. We show that people are especially averse to algorithmic forecasters after seeing them perform, even when they see them outperform a human forecaster. This is because people more quickly lose confidence in algorithmic than human forecasters after seeing them make the same mistake. In 5 studies, participants either saw an algorithm make forecasts, a human make forecasts, both, or neither. They then decided whether to tie their incentives to the future predictions of the algorithm or the human. Participants who saw the algorithm perform were less confident in it, and less likely to choose it over an inferior human forecaster. This was true even among those who saw the algorithm outperform the human."

Overall a thought provoking book.

Jim Angstadt says

The Future of the Professions: How Technology Will Transform the Work of Human Experts
Richard Susskind, Daniel Susskind

The authors, a father and son team, analyze the fields of law, education, accounting, medicine, architecture, and others, to assess how technology has effected their practice, and how that practice, and the tasks within it, may and will change in the next few decades. Their approach is analytical, understandable, supportable; their results may frighten some and motivate others.

The first third of the book gives one an understanding of legal, ethical, and common needs that lead to what we might call professional practice. Some of the key identifiers of a profession include specialized knowledge, advice to those less knowledgeable, continuing education, a high standard of ethics, and a value to society in general. The authors give examples of how those professions changes over time, and in recent years, how those changes have accelerated.

The next third of this book, titled "Theory", discusses the nature of information, technology, and the means of distributing that information. This is very helpful in assessing trends and the increasing tempo of technology progress. It also helps one understand some of the pressures on the professions to improve their delivery, with respect to cost and breadth. For example, many people cannot afford a lawyer; if they could, then maybe they would be better off, and so would society in general.

The final third of the book deals with the implications of the current trends. We see that parts of these professions can be automated. Once some of the easy pickings are done, then artificial intelligence is better able to pick off more. In the long run, this iteration will/can continue to reduce the role of the professional. For example, the lawyer may not need to personally explain all the details to the client. That may be done by a combination of technology and/or skilled, empathetic briefers/guides.

Is this a fearful future? Yes, for many who think of a job-for-life future. For others, perhaps those with a continual interest in learning and a need for variety, the years ahead may be exciting and rewarding. Learning and adaptability seem more important than ever.

Mary Hartshorn says

The Future of Professions really makes you look at how social classes have been changing throughout history, and how professionals now are looked upon compared to professionals before. It also points out how where you go to school, who you know, how good you are can impact professionals, past, present and future with the elitist mentality.

This is an interesting book that really takes a look at the future of a list of professions. I found this intriguing especially since there has been some changes recently impacting jobs like a cashier at McDonald's. Not long after the minimum wage increased to $15, kiosks have been ordered and installed in some areas across the U.S. to replace the cashiers. This is not one of the top careers, but if this can happen here, what other jobs can be replaced by a machine in the future? A kiosk is still a pretty simple machine and will only improve. We are surrounded by smart technology everywhere we go, and it just keeps getting smarter.

Daniel and Richard explain the concept of the grand bargain and how the common people have given over permission and authority to ‘professionals’. The authors explain that this bargain has effectively given the keys to a number of professionals who make a lot of money from society because we are entirely dependent upon them for their knowledge, experience and expertise. They go on to discuss seven different models to make practical expertise available in society. One is the traditional model currently being used, while the others are future possibilities dependent upon technological advances.

The implications in this book are a little scary to think about, especially how any changes might impact my family.

Brian Clegg says

We're used to hearing how technology is going to replace the jobs of those doing mechanistic jobs - but this book takes on the impact that technology will have on the professions.

I've only given the book three stars as it feels rather too much like a textbook (admittedly a well-written textbook), it's fairly repetitious and there's limited coverage of the science and technology behind the move. However this doesn't detract from the fascinating aspects of the book.

One of these is simply addressing the professions at all. According to the authors there's a fair amount of literature on this - but it's stuff us ordinary mortals are unlikely to have seen. A starting point is deciding just what the professions are. The book primarily focuses on the traditional professions such as medicine, accountancy, the law, journalism and religion - though they admit that the concept, essentially one where it is necessary to have specialist knowledge and there is often regulation and/or certification, is now a lot wider. (In practice, though religion gets passing mentions, it's largely sidelined, which is probably sensible in the context.)

The authors' assertion is that these roles can be subject to a kind of production line breakdown of tasks, some parts of which can easily be accommodated by information technology or less qualified individuals. The argument is that not only will this reduce costs where, for example, companies are reluctant to continue paying through the nose for corporate law (bye bye Suits), it also has the potential to open up these services to a much wider clientele that is presently largely excluded or at least has significantly reduced access.

Of course there are plenty of objections (often from those involved in the professions) which the authors largely succeed in knocking out of the way. For example they point out that this move will probably reduce the earnings of many professionals - but as they observe, these roles are not there for the benefit of the professionals but for their clients. Inevitably there is quite a lot of futurology style guesswork here. The authors point out they will often be wrong in detail - but argue convincingly that the professions are going to go through a major upheaval in the next generation.

It's amusing, given the authors' assertion that 'in the professions, knowledge resides in the heads of professionals, in books...', using this as a mark of how out of step the professions are in the internet age... that I should have been reading this in a book, rather than, say, a blog post or electronic magazine article. However this still remains a title of interest to anyone either involved in a profession (traditional or more modern) or interested in the future of the middle class.

Tony Garnett says

The one thing you shouldn't predict, the old joke goes, is the future.
So this is just one attempt. But it's in line with others. Even though the transformations are seismic in profession after profession, people I know say it can't happen to them.
It probably already is.
What technology did to the skilled and unskilled worker, is now eating up and transforming the middle class professional. With unpredctable social and economic and political consequences.
This is worth reading and thinking about

Anoush Margaryan says

The argument is choppy and not as insightful as one would hope. Lots of long quotations from various authors but little analysis/synthesis. Also, a lot of outdated information/technologies - eg in the chapter on Education (the field I am most familiar with) references to 'blended learning', MOOCs and 'e-learning' as future technologies... Disappointing.

Tim Hughes says

Father and son team, write an extremely well researched book where they try and look into the future. In doing this they explain how we got where we are today, the objections people have to change and why and then based on the patterns we see around us in Technology, Social Media, Artificial Intelligence etc. These are all disruptors to the current profession status quo. Now is the time to stop and think and appraise your current position or get left behind.

Richard Thompson says

I really wanted to like this book, but I found it disappointing. Like too many popular non-fiction books, it takes 350 pages to express an interesting idea that could have been fully developed in 35 pages. I was intrigued by the basic premise that as computers become faster and faster and more and more complex and as networks become ever more connected, we will get to a place in the not too distant future where complex tasks that are performed today by highly paid professionals will be done by machines and semi-skilled lower paid paraprofessionals. I think that this is probably right, although my particular profession of entertainment law is likely to lag behind the trend by a few years, and I will be long retired by the time my job is obsolete. The problem with the book is that the author never really develops the idea in an interesting or insightful way. He tells us a lot of things that we already know and speaks of the future in vague generalities. I have always enjoyed being on the bleeding edge in my job, working in new areas and finding new ways to do my job better, even when it has not made me more money, so I was hoping that this book would give me some pointers as to how move the business to next level. Unfortunately it didn't, so I'll have to look to some other source for inspiration.

Trevor says

One of the most interesting books by Richard Sennett I've read is The Craftsman. It is too easy to think of a craftsperson as someone who is very skilled, that is, to focus on their skills, while what they really are is someone who takes flawed and particular materials and knows how to accommodate, to work around those flaws so as to make something virtually perfect. This is an incredibly important idea and so I'm going to stress it a bit since this bespoke notion of the craftsperson is central to the idea of what a professional is in this book. A craftsperson is someone who applies their skill to the particularity of the circumstances they are confronted with – the grain of the stone, the maturity of the wood, the coarseness of the fibres – and they are then able to make a bespoke product from these materials, adjusting their technique to the requirements and limitations of the materials at hand. Now, this is the opposite of the way products are manufactured in industry. The division of labour requires 'standardised inputs'. If a craftsperson is able to produce a product that incorporates and embraces the flaws in the raw materials it is required to deal with, industrial manufacture is universal because it standardises these inputs so as to also standardise the outputs.

Repeatedly throughout this book the authors stress that the key unifying idea of a professional is that they provide bespoke solutions to their clients' problems. Some of this depends on a professional's access to knowledge that is difficult to acquire, and since we all live in a complex society, it is important that some of us specialise in acquiring that knowledge. Often this isn't explicit knowledge that you pay for, but rather tacit knowledge – that is, the professional can't tell you how they know, but they still know all the same. This might sound like professionals trying to justify their advantages and hide the source of those advantages, but actually, tacit knowledge is a very important human skill. Tacit knowledge comes out of experience, in fact, enough experience that we are often unable to put into words what it is we 'just do'. And since we find it impossible to describe or even know we are using this tacit knowledge, it is difficult to see how we could program a computer to do it.

And that is the interesting thing about this book. They repeatedly make the point that AI doesn't have to do things in the same way that humans do them to get the same or even better results. The point out that humans can't beat a computer at chess, but not because the computer plays chess like a human – it really doesn't – it plays chess like a computer – crunching millions of combinations via brute computational force. And so, the Turing test overstates the problem – even if we know the computer is a computer it can still be, in effect, more intelligent than we are. That is, in much the same way that industrial manufacture isn't the same as craft manufacture, it isn't that the output needs to be identical to the output of a craftsperson, but it does matter that the output is fit for purpose. That is, knowing the difference between a handcrafted lampshade and a manufactured one doesn't necessarily mean I'm going to always choose the handcrafted one.

The authors tell one of those management stories that they use to explain this idea early in the book – where some management consulting firm is talking to a meeting of executives from a power tool company and they show the executives some photos of a drill and ask, 'is this what you sell to your customers?' The executives assume this is some sort of trick, but eventually agree that it is – to which the consultants say, 'no, you sell the hole in the wall, the drill is just your latest way of making that hole'. Yeah, yeah. But the authors make good use of this story as they go on – so, what is the hole that professions sell their clients? And to what extent will technology be able make that 'hole' in ways that will not require professionals to work or engage with their clients in the ways that they do today?

A point they make is that there is likely to be latent demand in the economy. That is, people, who would like

to go see a doctor or a lawyer or one of any other groups of professionals, but who can't simply because such bespoke services from professionals are insanely expensive. And that the extreme expense of professional services makes these services remarkably unevenly distributed in society, which in turn works against our society being fair or democratic. As such, the shift towards redesigning these services so that they can be provided by information systems is likely to provide huge benefits for a wide number of people across society. And that this democratising of access to professional advice is going to be hard to stop as communication technology becomes increasingly all-pervasive.

They also make the point that professional workers generally seek to stress the bespoke aspects of their work – you know, the accountant who needed to do the accounting version of a triple back summersault with a pike to ensure the maximum tax return for their client – whereas, in reality and overall, most of the tasks associated with their job are routine and fairly simple. That is, the authors aren't saying that all professional jobs will necessarily disappear in the next few years, but what they are saying is that a great many of the tasks that professionals do are able to be taken from them by network design, AI, process re-engineering and so on. As such, the work that professionals do is likely to change significantly and even if this doesn't eliminate their jobs entirely, it will significantly change those jobs, probably to the point where they are barely recognisable.

Basically, this book provides us with a vision into the future presenting a kind of Fordist reshaping of professional work. A lot of what I've been reading lately has stressed that most of the jobs that are about to disappear due to automation are those in the middle – that is, the paraprofessionals, rather than the professionals. The reasoning being that paraprofessionals generally do routine work professionals avoid. However, this book thinks paraprofessionals may have more going for them than we imagine. They are cheaper than professionals, they are highly trained in the specific tasks they perform – in much the same way that the division of labour in factories broke down complex craft skills into smaller and simpler ones – and they are also often required to have more interpersonal skills than the 'content knowledge specialists' who are the true professionals. This level of simplification of work roles and specialisation of individual tasks is exactly what the Fordist industrial revolution brought for us at the turn of the last century in turning crafts into a division of labour – and so it isn't clear why it wouldn't do much the same when it is being applied to professional work.

This book provides a useful discussion of what a professional is, it gives a history of the development of professions and also compelling visions of how they are likely to change over the coming decades. This is a seriously interesting book.

Sainath Sunil says

That technology will transform the way we think, we work and we see the world is a foregone conclusion. what is however of relevance is the role we will play in it, will we as is said, focus on higher order thinking and enjoy leisure while machines handle the redundant tasks or will we become inconsequential and our skills obsolete as machines become sharper and intuitive. Globally this is the discussion that is slowly captivating the mindspace of people and policy makers alike. In a world where the computing powers of machines is increasing at an exponential pace machines are already smarter than most of us, as machines begin developing cognitive skills and start pushing through the turing test limit, the obsolescence of humans is becoming a reality which is not too far off. How we skill up, how we prepare and what we do to equip the current and prospective generations is going to be the absolute key here. Jobs are going to be taken over by

machines and new ones will be created but will they be enough for the employable population then or will it be more of what we already have now in terms of jobless growth only to be called as technology induced unemployment. we live in times of great disruptions with ominous repercussions for the future. Both omission and commission of technology will be major steps to ponder over, as none is without risk.

Tara Brabazon says

This is strong, fascinating and provocative book. Part polemic, part techno-celebration, this book is valuable for scholars of the internet and scholars of the professions.

Aligning globalization and disintermediation, Richard and Daniel Susskind probe a post-professions future, a world where expertise is distributed widely and digitally.

The weakness of this monograph is that the internet is configured as a panacea, medication, boon and benefit. The strength is that it offers provocations to think about knowledge, teaching and learning in new ways.

Alix says

Susskind and Susskind make some interesting projections about the way digitization will reorganize knowledge. As they say, we're a while away from their end state. Watching how new companies and new professionals begin to organize their work may give some indication of whether Susskind and Susskind have the right idea.

Shawn Stone says

As a teacher it’s frustrating that we’re forced to prepare kids primarily with the skills needed for jobs that simply won’t exist in the future. With the rise of technology we are witnessing the incremental dismantling of the professions as we know them along with the redundancy of their respective skillsets.

The roles played by doctors, teachers, accountants, architects, the clergy, consultants, lawyers, and many others will as Susskind argues, will look substantially different in the years to come, if they are to exist at all.

I read this along with Ross’ excellent, “Industries of the Future” to get a more specific overview of the transformative effect technology will have on how particular fields will change in the coming years. Most of the conclusions seem intuitive given the evolving trends and pace of industrial innovations, yet most people will be wholly unprepared and most definitely resistant to the unprecedented upheaval the eventual displacement automation will bring.

You’ll need to either race to keep ahead, work alongside, or be made redundant in the Darwinist sense of the word if you fail to keep abreast of the inevitable sea-change that’s to come.

If you think that you currently provide a level of “human-touch” that’s immune to replacement by machines,

or believe that there will be an offshoot of jobs created by these new technologies, then you need to read this book to understand why this most definitely WON'T be the case.

"Termination" might not come in the physical sense via a cybernetic organism wearing dark shades and riding a Harley, but will almost definitely happen via an automated email from an automated/outsourced HR department.

"Professions" is a very dry and repetitive read in parts with its academic and textbook-like tone. However, its underlying thesis is timely and prescient; maybe preparing kids for the uncertainty of life in an era of technological unemployment and a near jobless future will require the (re)teaching of basic hunter and gatherer survival skills? Let's hope the machines treat us nicely.

Al says

This is a very thorough investigation into the state of technology and innovation, as they relate to the professions, and to their likely effects in the future. One of the authors has spent years working on the legal profession, but the book ranges widely across all the professions. Wisely, the authors shy away from specific predictions and time frames, but they strongly believe that the day of the "professional" as a fully knowledgeable and protected expert is drawing to a close, and fairly quickly. Still, they are optimistic that the technology-led evolution of professional work can, and should, lead not to fewer jobs, but simply different kinds of jobs within the different professions' spheres of knowledge. At least one other author (Martin Ford, in The Rise of the Robots) is less sanguine, foreseeing complete elimination of various classes of jobs without replacement. With the unbelievable continuing escalation in computer speed and power, the real answer to the question of who is right may come sooner than we think.
If I were reading only one of these books, I would choose The Rise of the Robots", although for a reader particularly interested in the professions, TFOTP is superior. In fact, for a practicing professional in today's world, concerned about the future, I would say it's must reading.

Gumble's Yard says

Book by two authors who have regularly written on the development of the legal profession – now turning their attention to all professions. The book is engagingly (almost conversationally) written – often whole sections dive into academic theory, but these are explicitly signposted, the conclusions set out in advance and in summary and the reader openly invited to skip them if not interested in the details.

The book begins with a review of the history of the professions – which crucially the authors link to a world of printed text and an explosion of knowledge which no human could in such a world expect to master across and all areas. This introduction culminates in what it calls the grand bargain, that

> In acknowledgement of and in return or their expertise, experience and judgement, which they are expected to apply in delivering affordable, accessible, up to date, reassuring and reliable services, and on the understanding that they will curate and updated their knowledge and methods, train their members, set and enforce standards for the quality of their work, and that

> they will only admit appropriately qualified individuals into their ranks, and that they will always act honestly in good faith, putting the interests of clients ahead of their own; society places its trust in the professions by granting them exclusivity over a wide range of socially significant services and activities, by paying them a fair wage, by conferring upon them independence, autonomy, rights of self-determination, and by according them respect and status.

They then set out what they see as areas where the grand bargain is breaking down, the two most crucial of which are that: most people and organisations can no longer afford the services of first rate professionals; that the bargain rests on (and in fact is entirely based around) increasingly antiquated techniques for creating and sharing knowledge.

They then consider the role of technology and artificial intelligence and argue that people mis-under estimate this role in two key but different ways: technological myopia (for example not seeing the role that empathy could play in future AI systems) and the AI fallacy (that the only way to develop systems is to replicate the thinking process of human specialists – they quote a number of times by contrast Deep Blue and the brute force approach it applied successfully to defeat human chess experts, and argue that similar brute force techniques using Big Data techniques can replace and outperform professional expertise and judgement).

They then set out examples across various professions of where they believe their revolution is already occurring (crowd sourcing, the use of online systems, access to online videos, big data and data mining techniques, expert systems like IBM's Watson).

This is followed by an excellent section summarising patterns which seem to apply across the professions: the move away from bespoke services, bypassed gatekeepers, the more-for-less procurement challenge, technological transformation (automation and the different concept of innovation) emerging skills (new communication techniques, data mastery, use of technology, diversification), the reconfiguration of work (routinization, disintermediation, decomposition), new labour models (offshoring/arbitrage, para-professionals, flexible self-employment), more options for recipients (online selection and self-help plus open source collaboration), new preoccupations of professional firms (liberalisation, globalisation, specialisation, new business models, fewer partnerships and consolidation) and an overall trend of demystification.

The second section of the book is perhaps the least enjoyable (and best read as reference) – setting out two key sets of background theories on how information/technology and the production/distribution of knowledge have, are and will evolve. The key part of these sections is their conclusion: that technological and economic trends mean that in the full-fledged technology based Internet future, many if not most of the tasks which are currently the exclusive realm of professionals will instead be performed by increasingly capable machines autonomously or by equipping non-specialist users (often the reciepents).

They then consider the consequences of and objections to this thesis – many of these they reject based on a strong view that the professions have increasingly let down their side of the grand bargain and that technology is eroding the very base on which it was struck.

Two interesting areas are: their consideration of how a pipeline of future experts will be maintained (they suggest three ideas: a return to apprenticeship, parallel checking of the work of the automated systems and e-learning); what future skills may replace those of professionals (they argue for a range of roles: craftspeople

– the real remaining experts, assistants and para-professionals, empathizers to deliver difficult advise (they argue that few existing professionals have great skills here), R&D workers, knowledge engineers, process analysts, moderators (of on line communities/Wikis), designers, system providers, data scientists, system engineers.

Overall an extremely thought provoking book.
