

Disintermediation

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Abstract

Disintermediation is a concept well-understood in almost all industries. At its simplest, it refers to the process by which intermediaries in a supply chain are eliminated, most often by digital re-engineering of process and workflow. It can often result in streamlined processes that appear more customer-focused. It can also result in the destruction of almost entire industries and occupations, and the re-design of almost every aspect of customer and client-facing activity. To date, legal education in particular has not given much attention to the process. In this article I explore some of the theory that has been constructed around the concept. I then examine some of the consequences that disintermediation is having upon our teaching and learning, and on our research on legal education, as part of the general landscape of digital media churn; evaluate its effects, and show how we might use aspects of it in two case studies that are, effectively, versions of the future of legal education.

Introduction²

Disintermediation, at its simplest, refers to a disruption in the process by which agents in a commercial relationship, often part of a supply chain, are involved in the supply of goods or services for a price. An intermediate entity or person may act as a middle agent between other industry agents such as buyer and producer – eg another buyer, seller, locator, advertiser, manufacturer, sub-producer in a production chain, sub-agent in a process chain – and become established in that position. The established intermediary is *disintermediated* from market position, often because the role is subsumed by another, or eliminated entirely or taken over by the operation of digital technologies that work at much lower cost margins.

Examples of this process include many of the clerking industries – travel agents (particularly with reference to travel and hotel bookings) and bank clerks, for instance. They also include whole occupations where the processes of buying and selling are so different in the digital domain that conventional buyers or sellers are forced out of the market – for example bricks-and-mortar music shops when faced with competition from direct internet-based sales, or download sites such as iTunes, or streaming services such as Spotify, Tidal and (most recently) Beats and Apple Music; or, in the book trade, the competition between conventional book shops and online providers such as Amazon. Bank financing is a more complex example. Disintermediated banking (the ‘removal of banks as financial intermediaries’) is sometimes termed ‘shadow’ banking, characterised by the emergence of finance companies, hedge funds, real estate investment trusts, securities lenders, investment banks, for instance.³ As Zilgalvus pointed out,

the financial sector is one seen by banking sector analysts and commentators as being particularly ripe for disruptive innovation, given its current profits and lax competition. Technology-driven disintermediation of many financial services is on

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³ S.L. Schwarcz, “Shadow Banking, Financial Markets, and the Real Estate Sector”, Plenary presentation, World Economic Forum’s Industry Partnership Strategists Meeting (3 October 2012). Available at: http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=5368&context=faculty_scholarship (accessed 14 October 2015), p. 1.

the cards, for example, in financial advice, lending, investing, trading, virtual currencies and risk management.⁴

We should note that it is not simply a case of digital technologies disintermediating analogue industries, and in a single takeover. Digital technologies are ceaselessly emergent, and disrupt their own industries.⁵ Processes of aggregation, the insertion of trusted providers and authentication agents, filtering agents, value-adding agents and online shopping agents – all these are examples of disintermediation and re-intermediation, processes that are ceaseless within the digital domain itself.

Disintermediation occurs everywhere there is digital presence, and this applies as much to patient and client-based services as to industrial and retail processes. Eysenbach for instance described disintermediation as a process where the advice of expert health professionals was being supplemented by consumers and patients who were gaining access to unfiltered information. He therefore suggested a role for apomediarities, as he termed them, online guides to enable patients to interpret the vast amount of health information and data online, and to assist them to make decisions on the basis of that information. They helped users to navigate problems such as informational overload, and used collaboration to enable users to scale, filter, recommend and bookmark information and virtual communities.⁶

Disintermediation may also involve ‘unbundling’ in some way or other – the disruption of previously grouped products or services. A typical example from the music industry is the disaggregation of what had been a product entity, the LP or CD, into component tracks that could be purchased separately on web sites. Legal commentators such as Richard Susskind have observed this happening for some time now in a variety of legal services, and predicted it will expand in the legal services market.⁷ The Legal Services Consumer Panel 2014 Tracker Survey found that in England and Wales one in five of all legal transactions involved unbundling to some extent; and a recent survey by Ipsos MORI for the Legal Services Board confirmed the range and extent of unbundling that was taking place in relation to civil, family and immigration matters.⁸ Consumers of legal services felt that the process gave them greater control in their matter, and helped to speed up legal process; but as many

⁴ P. Zilgalvus, “The Need for an Innovation Principle in Regulatory Impact Assessment: The Case of Finance and Innovation in Europe” (2014) 6 *Policy and Internet* 377, p. 379.

⁵ Blockbuster and Nokia are typical examples of companies that fell to innovation and disruption in their respect industries.

⁶ G. Eysenbach, “From Intermediation to Disintermediation and Apomediation: New Models for Consumers to Access and Assess the Credibility of Health Information in the Age of Web2.0” (2007) 129, *Studies in Health Technology and Informatics* 162

⁷ See for example R. Susskind and D. Susskind, *The Future of the Professions: How Technology Will Transform the Work of Human Experts* (Oxford, Oxford University Press, 2014).

⁸ Legal Services Consumer Panel, “Tracker Survey 2014. Briefing Note: A Changing Market”. (2014) Available at http://www.legalservicesconsumerpanel.org.uk/ourwork/CWI/documents/2014%20Tracker%20Briefing%201_Changingmarket.pdf (accessed 1 November 2015). Ipsos MORI “Qualitative Research Exploring Experiences and Perceptions of Unbundled Legal Services” (London, Legal Services Board, 2015). See https://research.legalservicesboard.org.uk/wp-content/media/14-086345-01-Unbundling-Report-FINAL_060815.pdf (accessed 1 November 2015). The principal benefits for clients were reduced costs and access to expertise. But unbundled services ‘primarily serve those consumers who wish to save money, rather than those for whom money would be a barrier to accessing legal services – providers suggested that clients need to have a certain level of literacy and capability to be able to cope with unbundling’ (p.2). For a recent example, see the press reporting of Riverview’s consultancy service for in-house lawyers in which a multi-disciplinary team from the firm will work with general counsel to bring about a ‘clearer understanding as to how technology, workflow automation, reporting and data visualisations can help make your function more effective and efficient on a sustainable basis’. *Global Legal Post*, at <http://bit.ly/1MV9SRI> (accessed 1 November 2015).

have observed the issue is highly complex, not least on the subject of quality of legal advice and assistance offered.

The mediational place of lawyers in society has often been commented upon. Increasingly, though, algorithms are being designed as intermediaries that can interpret the complexities of the law for other professionals and for the general public. Linklater's Blue Flag initiative was an early example, offering specialist premium risk information and document automation in financial services that also included embedded advisory capabilities within documents.⁹ The move from document automation to innovation has led to the growth of algorithmic advisers; but the movement has shifted radically, as scholars revise their understanding of the interaction of machine code, legal codes, rhetoric and user experience (UX). As Katz and Bommarito have observed, however, our legal codes are complex technologies. This observation is hardly new to legal historians, but in their development of tools to understand such complexity Katz and Bommarito are examining the meta-level of cognitive and informational complexity that grows from a body of text. In effect, what they argue for is a category of mediational agents based upon predictive coding that will interpret the complexity of the Code for users.¹⁰

Quite apart from the educational implications of this approach, the interpretive issues raised by such technological initiatives are complex, and we have scarcely begun to appreciate how they affect law's normativity. On one level, all technologies mediate knowledge for us: this is true even of a relatively simple non-predictive technology such as medieval tally-sticks, a common administrative tool in medieval chanceries.¹¹ It is more so in the case of glossed manuscripts, at least part of the function of which was to 'preserve technical vocabulary and the terms of debate from change' and which also served to control the variation of sources and their interpretation within key legal text such as Gratian's *Concordia Discordantium Canonum*.¹² Such investigation of the effects of technology upon legal reasoning becomes a pressing issue in the case of digital applications that offer mediational agents that *predict* the Code. For legal educators, the applications are valuable agents in the educational domain and require us to give thought to their use and effects, not only because they offer new affordances, but because they have the capacity to disintermediate conventional forms of tuition and learning, and possibly also conventional forms of legal reasoning.

They also are indicative that disintermediation is not simply a form of commercial process re-engineering that at first glance bears little resemblance to the activities that take place in law schools. Compared to the relatively swift and massive changes within the travel agency industry, or in global finance, for instance, it is true that the core activities and texts of law schools seem scarcely to be affected. But disintermediation is more profound than mere process re-engineering. *Au fond*, it is a disruption of habitual forms of thinking, acting and

⁹ See <https://blueflag.linklaters.com/Pages/BlueFlagHome.aspx> (accessed 1 November 2015).

¹⁰ D.M. Katz and M.J. Bommarito II, "Measuring the Complexity of the Law: The United States Code" (2014) 22 *Artificial Intelligence and Law* 337.

¹¹ M.T. Clanchy, *From Memory to Written Record. England 1066-1307* (Oxford, Blackwell Publishers, third edition, 2013).

¹² I. Maclean, *Interpretation and Meaning in the Renaissance*, (Cambridge, Cambridge University Press, 1992), p. 139-40. I describe Gratian's text as follows:

This collection of comments, known as the 'Standard Gloss' (*Glossa Ordinaria*), stabilised about three-quarters of a century after Gratian wrote the original text, and was incorporated into future versions of the text. The comments, some anonymous, some signed with initials, were added around Gratian's text which came to occupy the centre of the page. The glosses themselves underwent small-scale revisions, supplementing each other, sometimes one gloss replacing another.

P. Maharg, *Transforming Legal Education: Learning and Teaching the Law in the Early Twenty-First Century* (Aldershot, Ashgate Publishing, 2007), pp. 130-31.

being, and of our habitual mediation of reality. It is pure movement between a state that is compelled to change into another state that cannot yet be known but which must be represented if we are to move into it with awareness of what is about to happen, and what will be changed or lost in the process. As Gadamer observed, we can, paradoxically, think unthinkable thoughts; but when we want to explore such thoughts or states of being for ourselves or communicate them to others we need to find ways to represent them to others.¹³ Disintermediation forces the re-presentation of reality, where the pure movement of the noun dislocates us from mimetic representation of reality, to a new representation, a new relationship between signifier and signified.

Thus when we look closer at legal education we can see the effects of quite profound disintermediations happening within legal curricula and processes of teaching and learning – disintermediations that have implications for almost every aspect of student learning, for staff status and activity, and for our understanding of what legal education is and can become. I shall take two examples – legal search skills, and open access learning. They reveal disintermediation at work in a variety of ways in legal curricula, and may help us understand the liminal nature of disintermediation as a force for change and innovation.

Open Access Learning

Open Access (OA) learning has many definitions. Here I refer to it in its broadest aspect, namely the ability to ‘read, download, copy, distribute, print, search, or link to the full texts’ of learning, teaching and research resources, ‘without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself’, and with the only constraint being authorial control over ‘the integrity of their work and the right to be properly acknowledged and cited’.¹⁴ We normally think of OA textbooks as a contemporary movement, with its origins in the digital revolution. But it is a much older issue, with a more complex origin, and we can appreciate it if we begin with a passage from the historian Lisa Jardine, describing a moment early in the development of academic textbooks:

In October 1513 the Low Countries printer Thierry Martens published a new commentary on a standard legal text by a distinguished professor of law at the University of Louvain. In a prefatory letter to his student readers Martens explained how the volume had come about:

Professor Nicholas Heems, doctor of humanities and outstanding professor of law, was tutoring a small number of privileged students in private, in his home, dictating to them an introduction to the Institutes of Justinian. By this excellent means he was able to make the whole subject of jurisprudence easier for them. Some of these young people transcribed their master’s lectures with great accuracy, and later showed him their notes. When he realized how much they had benefited from his coaching he judged it appropriate to use the art of printing to produce a thousand copies. I, the printer, agreeing that such a book would profit you as students of law, and greatly advance your studies, accepted the handwritten text from your master, and produced a large number of copies in my printing house. Here I offer the fruits of my labour to the Faculty of Law. If you like this little work,

¹³ H-G. Gadamer, *Truth and Method* (London, Bloomsbury Revelations, 2013, translation revised by J. Weinsheimer and D.G. Marshall), p. 401.

¹⁴ This definition is derived from the Budapest Open Access Initiative – see <http://www.budapestopenaccessinitiative.org/read> (accessed 1 March 2015).

in a few months I will produce more printed texts on the same sort of subject.¹⁵

In Martens' preface, published just over half a millennium ago, we have the dilemma of open access and a clear example of both media migration and disintermediation. First there is the intimate circle of master and students — a set-piece of education that goes back as far as the Stoa, but here there's the nice touch of Heems meeting the students in his own house. Next, we have transcription of what may be less of a lecture and more a tutorial, but nevertheless something that is highly structured. The next step is crucial. The students show Heems their detailed notes, and Heems comes to think about the pedagogic and reputational effects of them if they are disseminated using the new technologies of printing with moveable type. Note that neither students nor professor have commercial motives. Between Heems and Martens the decision is made. But what happened to the students' role in creating a valuable version of Heems' words, and their efforts in collating the notes? We are not told: they vanish from the story. Yet they played a crucial role in the transaction. Heems, after all, may not have published earlier than this because of the effort of transcription, structuring, checking and many other tasks that the students undertook for him.

That is one reading of the passage. But another would focus on the migration of knowledge from manuscript to print cultures. Note that the three drivers of curriculum (its structures of knowledge, of learning methods and of reputation) are as important forces for conservation in the fifteenth century as they are in the twenty-first. Heems could have dismissed the innovation of printing and decided that what professors had done since the eleventh century would be sufficient — create a *summa* of the notes, another manuscript that summarised the student notes that summarised his lectures, and circulate this among scholars. But instead Heems switched technology platform from manuscript to print, and made the leap into the renaissance flood of textuality.¹⁶ We do not know why Heems did so, but we can at least say that students and their work probably played a part in his decision.

A passage such as this extract from Martens' preface is important because we can understand the process that we are going through ourselves by observing how the process was handled in other places, other times. The technology switch altered Heems' role in the pedagogy. No longer is he in direct control of the uses of the manuscript within the confines of his house and in his *cursus*; instead, the book, disseminating quickly across Europe, can be used for many purposes, many pedagogies. Not all professors will agree with Heems' interpretation of Roman scholarship, and so the Heems text will stimulate others to produce texts, re-interpreting the core Justinianic literatures. With that dissemination of these texts comes profit, for the printer Martens but not the students.¹⁷ In fact students in this moral *fabula* are reduced to buying Heems' text in Louvain or elsewhere, paying to consume the bundle of information that the book contains. Thus print enables the dissemination of

¹⁵ L. Jardine, *Worldly Goods. A New History of the Renaissance* (London, Macmillan, 1996), pp. 214-5. An abbreviated version of this discussion appears in my blog at <http://bit.ly/1gpkQ8o>.

¹⁶ By 1500 and the end of the first period of early books, termed *incunabula*, there were around 20 million books extant in the 300 or so European urban centres where books were produced — according to Febvre and Martin, around 35,000 editions. L. Febvre and H-J Martin, *The Coming of the Book. The Impact of Printing, 1450-1800* (London, Verso, 2010, first published as *L'Apparition du Livre*, Paris, Editions Albin Michel, 1958, edited by G. Nowell-Smith and D. Wootton, translated by D. Gerard).

¹⁷ Nor (yet) for Heems. As Febvre and Martin point out, *ibid*, pp. 159-62, it was only in the later sixteenth century that the practice of printers reimbursing authors for their own texts began (as opposed to payment for their labour in editing an ancient author or proof-correcting a manuscript). Status played a key role here: it was more common and certainly more prestigious for authors to dedicate a book to a patron in the hope of recompense than to request payment from a printing house.

pedagogy, profit for printers, and enhancement of academic reputation for academics faster and wider than had ever happened before; and leaves students ever more in the position of early capitalist consumers.¹⁸

Martens becomes an intermediate in the process of learning between Heems and his students, and his commercial role as printer/publisher of legal texts increases as the centuries pass – indeed printers disintermediate university stationers, with their economy based upon textual copying. We can compare the Heems/Martens disintermediation with that of Christopher Columbus Langdell, whose legal education reforms at Harvard, widely credited with bringing about the ‘case method’ in legal education, included the creation of large casebooks based upon a particular subject, Contracts or Torts, for example.¹⁹ What is less well known is that Langdell’s publishing innovation could not have come about without the disintermediating revolutions in mid-nineteenth century printing and publishing, in Europe and the USA.²⁰

In the USA it has long been recognised that bloated legal case-books are more expensive than they should be, less useful than their bulk would warrant, and form part of a pedagogy, the case method, that is increasingly viewed as problematic in US law schools.²¹ Case-books are an essential element of the case method, and occupy a more central role than their equivalents in the UK jurisdictions or Australia or New Zealand, for example. Their centrality is a block to change and innovation, and in three ways. First, if knowledge representation of the discipline is bound up in the texts, what might replace them in an innovative curriculum? Legal educators need not just to innovate in forms of teaching but also in the mediational texts that students use to understand forms of legal reasoning and the primary literatures of case law and legislation.

Secondly, the problematics of unpicking educational method from textual representation is no easy matter. It is often easier to start again with a new conception of text that matches a specific approach to the discipline. The Law in Context series might be seen as one such

¹⁸ Students had of course bought, rented and swapped second-hand manuscripts since the eleventh century. But these were often produced within a university context – the institutional stationers – and in even the earliest universities stationers were subject to regulation that forbade sharp retail practices and set standards for copying, legibility and the like.

¹⁹ There had of course been student textbooks published before 1870 in England and in the US; but they were largely based upon a student hornbook method of organisation and in many respects not entirely dissimilar to the example of Martens’ text discussed above. Langdell’s original casebooks were simply collections of reported and reprinted cases. Only later did they contain secondary resources, commentary, etc. See C. Woodard, “The Limits of Legal Realism: An Historical Perspective” (1968) 54 *Virginia Law Review*, 722 for critique of the approach and its consequences.

²⁰ These include the invention of cylinder presses to replace Gutenberg’s flatbed press, of rotary presses that print both sides of a page in one operation, the use of pulped wood in place of pulped rag, the invention of folding and stitching machines. All these increased exponentially the volume and standardization (though not necessarily the quality or longevity) of printed productions, and all took place before 1870. Later inventions such as linotype and typesetting hugely increased the speed of the production of text. See A. Weedon, *Victorian Publishing: The Economics of Book Production for a Mass Market, 1836-1916* (Aldershot, Ashgate Publishing, 2003).

²¹ The literature on this is substantial. Perhaps the most comprehensive source of information on the casebook within the context of the case method is S. Sheppard, *The History of Legal Education in the United States: Commentaries and Primary Sources* (New York, The Lawbook Exchange, 1999). The Carnegie Report, while acknowledging a place for the case method in the first year of law school, advocated curriculum designs that were more professionally-focused, dealing in Shulman’s terms with heart and hand as well as mind (W.M. Sullivan, A. Colby, J. Wegner, Bond, L., Shulman, L.S., *Educating Lawyers: Preparation for the Profession of Law* (San Francisco, Jossey-Bass, 2007)). Many others have gone further in their critique of the JD case method and the place of case books within it. Alan Watson (2001, pp.93-4) is among many in advocating their abolition (A. Watson, “Legal Education Reform: Modest Suggestions” (2001) 51 *Journal of Legal Education* 91).

attempt in the mid-twentieth century to equip a conceptual approach to legal education with textual resources, though with no concomitant learning/technology methodology accompanying them.²² But the attempt to create anew both method and textual representation of that method can lead innovation into deep problems. The innovations that were carried out by Columbia Law School in the 1920s in their attempt to find a fresh approach to JD legal education is a good example of this.²³

Third, copyright represents a major block to the sharing and reuse of information by students and staff, and particularly copyrights held by publishers, for whom the commercial motive is paramount, and the origins of which can be traced to the late medieval innovation of printing we have just described. The literatures that stem from the contemporary movement advocating for open access in research literatures is a good example of the considerable problems posed by such commerciality and the radical solutions required.²⁴

There have been attempts to address directly these problems in OA teaching resources.²⁵ Two are of interest, both in US-based legal education. The first was an early technological innovation, an 'electronic casebook', described by Ron Staudt as 'a tool for group learning projects' and used in a Copyright Law class in 1992. The course was taught with a 'computer based casebook' in a 'networked classroom without a printed casebook of any kind'. The casebook was designed to be as flexible a resource as possible, where

[t]eachers could modify and reorganize [it] with ease, make it their own and adapt it to their own style of pedagogy. Students could be given assignments to do deep research and analysis of pieces of the course and offer electronic notes to the class to enhance the texts presented in the course.²⁶

The experiments were largely successful; but as Staudt acknowledged '[i]t is too early to write a recapitulation of the success or failure of electronic casebooks. We are living the early history of these emerging tools for pedagogy'. Written in 1999, that statement still holds for our own practices today.²⁷

The second example is a recent initiative by the Centre for Computer-Assisted Legal Instruction (CALI), a non-profit consortium of mostly US law schools, law libraries and

²² Though of course the movement had a general theory of legal education. See W. Twining *Law in Context: Enlarging a Discipline* (Oxford: Oxford University Press, 1997). For further analysis of pluralism in the context of legal education, see H.W. Arthurs, "Law and Learning in an Era of Globalization" (Toronto, Osgoode Hall, Comparative Research in Law and Political Economy, 2009). For a thoughtful exegetical exploration of the concept of context, see P. Burke, "Context in Context" (2002) 8 *Common Knowledge* 152.

²³ See Maharg, *supra*, n.11.

²⁴ For further critique of the neoliberalist, corporatist approaches of the major academic journal publishers, see <http://paulmaharg.com/2015/11/10/supports-open-access/> and <http://paulmaharg.com/2015/08/04/digital-research-literacies-part-2/>.

²⁵ Here I am addressing OA initiatives in casebook and textbook resources. There is of course a highly successful Open Legal Information Institute movement that dealt initially with primary resources of cases and statutes – see for example the Australasian Legal Information Institute (AUSTLII), the first such LII, at <http://www.austlii.edu.au> (accessed 14 November 2015). AUSTLII also hosts many secondary resources including journals, newsletters, monograph series and the like.

²⁶ See R.W. Staudt, "In Search of the Origins of the Electronic Casebook" (1999) 1 *Journal of Law School Computing*. Available at: <http://jisc.classcaster.net/volume-1-number-1/in-search-of-the-origins-of-the-electronic-casebook/> (accessed 23 June 2015). See also R.W. Staudt, "An Essay on Electronic Casebooks: My Pursuit of the Paperless Chase" (1992) 68 *Chi.-Kent L. Rev.* 291. Available at: http://scholarship.kentlaw.iit.edu/fac_schol/574 (accessed 7 September 2015). See also R. Shiels, "Law Students and Hypertext: One Law School's Model", BILETA '96 Conference Proceedings (1996) 3 *The Journal of Information, Law and Technology (JILT)*. <http://elj.warwick.ac.uk/elj/jilt/bileta/1996/3shiels/>. New citation as at 1/1/04: http://www2.warwick.ac.uk/fac/soc/law/elj/jilt/1996_3/special/shiels/ (accessed 8 September 2015).

²⁷ Staudt, *supra*, n. 23.

related organisations. CALI took up the work of Staudt and others as an innovative copyright and technology project called the eLangdell Press, founded in 2012, in which open digital casebooks, statutory supplements and other texts were created by authors (who were paid and who contracted to make their texts OA) and made available from a 'Bookstore' on the web. There are currently 42 publications, many with separate Teacher's Manuals). 'Open' is defined by the Press as follows:

- Compatibility with devices like smartphones, tablets, and e-readers; as well as print.
- The right for educators to remix the materials through more lenient copyright policies.
- The ability for educators and students to adopt the materials for free.²⁸

Flexibility in publishing formats means that digital and e-book downloads are free, and printed texts are possible and cheap. Remixing (point two) is particularly interesting. Disaggregation is a common feature of disintermediation. We can see it in the digital music business where the physical space constraints of the vinyl LP or the CD do not exist to nearly the same degree.²⁹ Indeed in streaming services users do not take possession of the music in the same way that they do a CD or LP, but can access for free or pay to play – the 'freemium' model of access. The ability to mix and play music in different contexts is greatly enhanced: users have more control over how they listen than they did when listening to tracks on a CD. They cannot, however, thanks to the coded restrictions of digital rights management (DRM) mix the music to the same extent that eLangdell Press's texts allow readers to remix textual materials.

CALI's initiative is highly innovative, not just in terms of the technology used, but also in its attempt to swerve around conventional copyright restrictions on educational content in casebooks, and the assistance it gives staff when they are creating new forms of educational texts. Whether or not it succeeds (and what constitutes success for it) depends on the extent to which it can adopt the three drivers of curriculum – its structures of knowledge, of learning methods and of reputation. Pedagogy is a strong driver for any member of law school staff entering eLangdell. Reputation is a strong driver too, particularly if an author is writing a casebook for the first time. For popular, well-published authors, there are more complex issues. Commerce is generally not an inhibitor, except for the few popular authors with an income stream. But there is a fourth point we need to consider and which is present in our medieval example. Heems may well have known of the new technology of moveable type, but it would appear from Martens' preface that it was not until a printer had set up shop in Louvain that Heems was able to make the critical step. Technology thus needed a local champion *au fait* with the multidisciplinary technologies that made up the sciences and arts of printing.³⁰ The same will be true of eLangdell.

²⁸ See <http://www.cali.org/elangdell/about> (accessed 2 November 2015).

²⁹ It does of course still play a role. One of the key price-point drivers for mobile phones is the size of the device's memory storage – 8mb, 16mb, etc. The storage of complex audio and video files are one reason for memory inflation.

³⁰ While the press itself may have derived from earlier instances of wine- olive- or fruit-presses, printing presented daunting technological problems to printers. Stable inks that could be transported, stored and were of the right consistency for metal dies had to be developed, and in large enough quantities for the production of many pages within a short space of time. Durable paper had to be manufactured from pulped rag in quantity. Metal dies, and the steel punches with which they were made, and upon which were engraved the fonts, involved early metallurgists, craftsmen and engravers. Also involved were networks of agents who carried equipment and books to markets and other towns, and of course book-sellers. The labour, equipment, networks and expertise involved required considerable capital, and an understanding of how financing could work to set up the business and identify the market. As Jardine points out, early printers often got this wrong. Thus the printers who set up shop in Venice as early as 1469 misunderstood the printing press's key attribute of rapid multiplication of identical texts, and simulated high quality and expensive 'manuscript books' in small print runs.

Will eLangdell succeed in creating a community of practice? It will depend on whether it can address the four issues identified above; but there is a final point to consider. One final point. Note the elite scene Martens describes — the little group of students in Heems' house, a model that is not really possible to expand or alter, and versions of which probably existed for at least three centuries in European legal education. With the appearance of the book of Heems' (and the students') notes, though, students no longer need to go to Heems' house, they do not need to attend his lectures, and identical copies of his lectures can travel great distances. ELangdell takes this further. What eLangdell provides is the ability for staff to meet by sharing work virtually, and for students to share in the fruits of that. In a curious way, we are back to a version, a virtual version, of that intimate circle in Professor Heems' house, but with Heems and many colleagues and students (who re-enter the story at last, half a millennium after Heems and Martens, and can be given their place and voice), creating, creating and adapting resources endlessly.³¹

Finally, given the steeply escalating costs charged by publishers for textbooks, can this succeed in reducing costs for students, or are we in the position of early fifteenth century Venetian printers described by Jardine (note 15, *supra*)? The Open Access textbook project entitled British Columbia OpenEd points the way. It has recently reported that 'as of 24 November 2015, the project has resulted in estimated savings for students of between \$927,000 and \$1,204,762 – a calculation based on 9,275 students across the 19 participating institutions who have adopted open textbooks'.³²

Legal research

Legal research skills are at first glance a predictable and easily-understood instance of disintermediation, given the closeness of skills to technological advances in digital search engines. But the consequences are not as easy to predict as we might think. On the surface, digital searching is powerful, astonishingly quick, and can be comprehensive within database structures. For many students it replaces paper-based resources: it is quicker, easier, apparently comprehensive and the results are arrayed on a screen in a window adjacent to an essay or report. They can be pulled into reference managers, sorted, commented upon, students can find commentaries upon cases, they can use crowd-sourcing commentary and search, annotate and share legal judgments and decisions, where judgment feeds become current information tools (eg via *Casetext* (US law) or *Jade* (Australian law)). Also included in these sites are visualisations and games.³³

Unsurprisingly, 'by 1474 nine of the 12 printing houses which had been set up had failed' (Jardine, *supra*, n.13, p. 129).

³¹ There are many parallels. Thus the pre-print university stationer, amongst many sophisticated procedures, would allow students access to sections of copied manuscripts under what was termed the *pecia* system of rental (from the word for a quire) – which of course is what eLangdell enables, for free from the digital text.

³² See <http://open.bccampus.ca> (accessed 25 November 2015).

³³ See Casetext: <https://casetext.com>. This site is divided into areas of practice interest, family, criminal, constitutional, etc. Under Legal Research is a whole collection of innovative projects on legal research – for example the WeCite contest, which is 'a community effort to explain the relationship between judicial cases, and will be a driving force behind making the law free and understandable'. In a mixture of peer-support and self-interest and fun, the initiative gives reasons for joining: 'You're helping to free the law'; 'Prizes'; 'Professional opportunities'; 'Bragging rights' (based on WeCite leaderboards for students and schools); 'Study trick'; 'It fits with your schedule'; 'It's actually fun [...] Think 2048 + Candy Crush + case law, but with prizes' (<http://bit.ly/1OcHmzw>, and note that the post has been written by the Head of Community at Casetext, a position that reveals how critical the concept of community is to the whole enterprise). See <https://casetext.com/wecite>. See also Jade: <https://jade.barnet.com.au/Jade.html> (site pages accessed 6 September 2015). Jade includes visualization tools on similarity of cases, precedent tracker, subsequent citations and litigation history, all invaluable for students when reading complex cases.

Note the move from trusted paper sources to algorithmically-generated results, and from individual search to community search and shared comment. These transformations occur in information industries as well as product industries. As Rafaeli and Ravid point out, when viewed as an information flow, a supply chain architecture is simply a topology. They argue that it may be possible to change information flows without affecting the chain structure. Whether or not that is possible or practical, their critical questions become increasingly important in an information topology where searching is carried out, as is increasingly the case in the context of legal information search, without benefit of validated trusted sources, and where communities source and create validated information:

What information gets shared? Is the information truthful? Is there still hidden information that is not shared or that people are not willing to share [...]?³⁴

The increasing importance of questions such as these for searchers in the field of online legal research reveals how significant are the changes brought about by digital media. No longer is training primarily about recognising the availability and use of analogue individual finding-tools published and updated by legal publishers, where weekly updates were often the fastest information available: it is now an online activity primarily where community and crowdsourcing are becoming as important as individual searches. Community, in other words, has disintermediated the individual search pattern, that was at once constrained but also validated by the published information in printed legal gazetteers, almanacs, digests and encyclopaedias. While these texts are still present in libraries, and their use is taught to students, there are problems associated with their use and interface in the digital environment, as the Legal Education & Training Review (2013) research team discovered when interviewing members of BIALL. The interviewees, all senior librarians, observed during the interview that

there were complaints from firms about trainees' research practices. They appeared to be generally unfamiliar with paper-based resources by comparison with digital resources. In addition, many noted that trainees seemed to depend on one-hit-only searching: in other words, they did not check thoroughly and contextually around their findings. They used Google extensively and their searches tended to be shallow and brief. Trainees were also increasingly unable to distinguish between the genres of legal research tools – the difference between an encyclopaedia and a digest, for example. They seemed to lack persistence and diligence in searching, as well as organization.³⁵

In further discussion the interviewees explored the reasons why digital technologies had not had universally positive effects. The ease with which one could copy and paste from applications was only part of the issue. The librarians saw that a fundamental problem was actually a legal educational design problem. Three points were made on this topic:

- e. The law degree was an apprenticeship of content, not of process.
- f. Over the last few decades the law curriculum had become ever more crowded with more core content and extra options.
- g. Part of the solution to crowded curricula was better design. In particular, academic staff needed to design with library staff in joint activities. Library staff, in other words, needed to be more at the heart of the educational design

³⁴ S. Rafaeli and G. Ravid, "Information sharing as Enabler for the Virtual Team: An Experimental Approach to Assessing the Role of Electronic Mail in Disintermediation" (2005) 13 *Information Systems Journal* 191, pp. 192-3.

³⁵ Legal Education and Training Review, BIALL Meeting Minutes: LETR BIALL Meeting, <http://letr.org.uk/wp-content/uploads/LETR-BIALL-Meeting.docx> (accessed 4 September 2015).

process with academic staff, and involved in teaching, learning and assessment.³⁶

These problems pre-existed the introduction of digital search capabilities of course, but it was the introduction of digital services that exacerbated them. In the same way that the introduction of digital into the photographic industry raised the fundamental question of what constituted a photograph and a camera, culturally, socially, as well as scientifically and technologically, so disintermediation of analogue search processes prompted wider design issues and raised fundamental questions about not just library training or information services but about educational process:

Library skills, it was felt, should be integrated more across [...] various forms of academic learning, and this could be recognized more by regulators.³⁷

The introduction of regulators at this point in the conversation was significant – the interviewees argued that the fundamental nature of the changes went beyond what librarians and academics do, to who librarians were. Regulators needed to recognize the changing role of law librarians as legal educators, and their new identity as information scientists:

- h. Currently librarians are classified occupationally in many institutions as ‘Clerical Staff’ or some such. This needs to change and their role as educators and digital information curators and digital information environment designers should be recognized.³⁸

None of this is radically new. Over a decade ago Biddiscombe (2002) noted the changing roles of subject specialists in UK academic libraries, while around the same time Pond (2002) pointed out the consequences of the radical change brought about to conventional regulatory measures such as ‘contact hours’, ‘library holdings’, ‘physical attendance’, and the like. What is new, however, is the scale of the shift from conducting individual search patterns to shaping searches within communities of search and comment. This has consequences for how academics (including librarians) act as researchers, how we educate our students in digital literacies, and how our jobs shape-shift in the future, with information scientists at the cutting edge of such a shift. On a broader cultural scale, and as I pointed out, it is a part of a vast historical circuit, where online search and comment moves back, beyond the book or *volumen*, to thirteenth-century glossatorial cultures of *textura* and *glossa*, mediated not by the slow migration of manuscript from school, monastery or university but by nearly instant trickles and floods of digital information flows across the internet and its myriad applications.³⁹

As a result, the regulatory infrastructure of the skill set requires considerable re-design.⁴⁰ If we take the learning and assessment of the skillset at professional level, we will see that practice varies considerably across jurisdictions. Rather remarkably, US Bar Exams do not include legal research — this in spite of the emphasis put on the skillset by MacCrate:

It can hardly be doubted that the ability to do legal research is one of the skills that

³⁶ *Ibid*, p. 2.

³⁷ *Ibid*.

³⁸ *Ibid*.

³⁹ Maharg, *supra*, n. 10. See chapter five, ‘Codex to Codecs: The Medieval Web *Redivivus*’, *passim*. As I say there, ‘hypertext revives technologies that lie *behind* the print revolution of the fifteenth century and which have been generally eclipsed by that event – in particular the technology of the glossed manuscript’ (p. 121).

⁴⁰ The following discussion is adapted from an exploration of the issues on my blog at <http://bit.ly/1hcCeaH>.

any competent legal practitioner must possess.⁴¹

The most recent ABA Taskforce Report on Legal Education recommended that the Exam contain less substantive law and more skills.⁴² In Scotland the learning outcomes for PEAT 1 (Professional Education and Training — the Diploma in Legal Practice) contain learning outcomes in legal research and facilitating technologies.⁴³ In England and Wales, legal research is assessed on the LPC and BPTC, and on the OSCE element of the assessment of the QLTS. In its Report, the Legal Education and Training Review (LETR) mapped the knowledge, skills and attributes then currently prescribed in all programmes in England and Wales.⁴⁴ LETR identified legal research as a skills gap that needed remedied.⁴⁵ Research was one of the activities that, in the Report's comparison of the skills required in 1991 as against 2012, varied according to the type of firm.⁴⁶ And the research team discovered interesting issues in professional educational culture that go to the heart of how, in the attempt to create fair and reliable assessments in law schools, we trivialise the complexities of practice-based and real-life research. As one academic interviewee put it:

Well, the one [skill] that I'm conscious of not matching up to is research. I don't think we go far enough. Before I became a lecturer I [worked] at a big City firm and they were very conscious of the LPC not producing students with the right written research skills. Because the problem with the way we teach research is that there is an answer. Because it has to be marked. But that isn't how it works in practice. And so I did a lot of work before I came here on teaching new recruits how to do research and to tackle the issue that you might not find the answer to a question. It might be that there is no answer. And how to deal with that is something which we don't really equip students for, I think.⁴⁷

One solution to this problem is to adopt a form of curricular disintermediation, to dismiss the structure of conventional academic tasks and assessments, and to embed students' learning experiences in real-life research activities, that would be directly mentored and supervised. But in order to do this we need to re-design the nature of search activity in the digital domain. For as significant as occupational re-grading and regulatory focus is the wider context of collaboration between academics, librarians and students, and the quality of imagination in that collaboration. At least three areas of research need investigated if we are to further develop legal research skills in the new digital domain. All of them, I would argue, are important to the development of search skills at any level of legal education:

1. *The phenomenology of how we do digital research requires further analysis.* The now classic work of Carol C. Kulthau on the information search process (ISP) needs to be re-framed. When she originally published her ground-breaking book in 1993, Andreessen's Mosaic (later Netscape) was still the *de facto* browser, and Google had not been invented.⁴⁸ By the second edition in 2003/4 Google had won the browser wars and the internet was a significantly different environment and set of tools, and digital disintermediation was characteristic of the digital churn. Not that that

⁴¹ R. MacCrate, *Legal Education and Professional Development – An Educational Continuum* (American Bar Association, 1992), p. 163.

⁴² American Bar Association, *Report and Recommendations* (Chicago, American Bar Association, 2012), p. 3.

⁴³ Drafted in 2007 by the author for the Law Society of Scotland as part of the Professionalism Learning Outcomes for PEAT 1 and 2. On file with the author.

⁴⁴ J. Webb, J. Ching, P. Maharg, A. Sherr, *Setting Standards: The Future of Legal Services Education and Training Regulation in England and Wales* (SRA, BSB, CILEX, 2013), Annex I, available at: <http://bit.ly/1IMJv9M> (accessed 2 November 2015). The tables are correct to June 2013.

⁴⁵ *Ibid*, Recommendations 6 and 11.

⁴⁶ *Ibid*, Table 2.7, p. 40.

⁴⁷ *Ibid*, para. 2.99, p.44.

⁴⁸ C.C. Kulthau, *Seeking Meaning: A Process Approach to Library and Information Services* (New York, Libraries Unlimited, second edition, 2003, first published 1993).

invalidates her work: but a decade on from the second edition, we need to re-think what the tools are doing to process and product. Her work has proven remarkably resilient to the massive changes in information science in the last few decades, not least because she founded her process approach on what might be termed a phenomenology of research, incorporating the work of George Kelly, John Dewey and Jerome Bruner. Her readings gave sophistication to her model: the exploration of routine tasks vs complex tasks, the uncertainty principle, the role of affect and the Zone of Intervention. But how does digital searching affect the model? What might predictive coding, for instance, do for search?

2. *The place of rhetoric and compositional studies shifts to the foreground of the skillset.* Legal research is often only the start of a process of communication of research results, and the spaces between research finding, legal argumentation and genre (essay, dissertation, professional memo or brief, eg) need further research. How do students move from identification of research results through to the process of structuring their writing, for instance? There is still little research carried out on this aspect of law student research, interpretation of results and composition.
3. *Visual arts and sciences can become much more facilitative.* There is little use of graphics and visualisations in the texts that teach legal research. Much of it is restricted to diagrammatics of legal systems, court precedential structures and the like. But the creative arts can be used for so much more. We might compare the subject matter and the format of such diagrams to the work of Candy Chang for instance — especially the project Street Vendor Guide, which was carried out in part in the Centre for Urban Pedagogy, and where Chang worked in a multidisciplinary team to make the complex bye-law regulations regarding street vendor carts explicable to the vendors who had no legal training, and whose first language was often not English.⁴⁹ Or the Tenants' Rights Flash Cards project, and for a mega-reflection project, see Reflections on Careers.⁵⁰ All of these open up the space of law at the point where people are directly affected by legal regulation in their lives. Or take the excellent work of Margaret Hagan, across a whole range of topics including legal education, where in the Stanford Program for Legal Tech & Design art and design are fused in a subject called 'Law By Design: Making Law People-Friendly'.⁵¹ At the margins of what we normally think of as legal research methods, these interdisciplinary initiatives give us fresh and potentially very effective ways of re-imagining how what are sometimes seen as problems caused by disintermediation of legal research in the digital domain are actually opportunities to expand knowledge and skill beyond the academy.

Conclusion

In a recent article on the twin processes of convergence and fragmentation operating on legal education I argued that we need to understand how the processes operate in law schools as institutions, in our curricular designs and in the resources we produce for those designs.⁵² This article is one such exploration.

⁴⁹ See <http://candychang.com/street-vendor-guide/> (accessed 3 November 2015). For information on the Centre for Urban Pedagogy, see <http://welcometocup.org/> (accessed 3 November 2015).

⁵⁰ See <http://candychang.com/tenants-rights-flash-cards/> and <http://candychang.com/career-path/> (accessed 3 November 2015).

⁵¹ See generally <http://www.openlawlab.com/> (accessed 3 November 2015). See <http://www.openlawlab.com/2013/12/23/law-design-consumer-law-pop-class-d-school/> (accessed 3 November 2015).

⁵² P. Maharg, "Shared Space: Regulation, Technology and Legal Education in a Global Context (2015). 6 *European Journal of Law and Technology*. Available at: <http://ejlt.org/article/view/425> (accessed 6 September 2015).

Disintermediation may at first seem to be a process arising from and limited to industry and to retail and professional services, with little application to legal education. As I hope I have shown, it is much more than disruption of process and product: it is a powerful and essential function of knowledge production that accompanies all representation of knowledge and information, regardless of its medium and format. To understand and harness those forces we need to work with regulators, students and many others to research their effects. We need to embed and converge hardware, applications, media and the creative arts in new curricular designs that will involve us in radically re-designing curricula and reshaping employment categories, amongst much else. Above all we need to adapt and reshape the cultural practices that have gathered around our everyday use of technology in our lives for use in digital learning/technology in legal education.