

# Regulation and the Market: A micro-economic analysis of strategies for electronic archives management

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*Electronic archives management is something we recognise as a program function of electronic recordkeeping. In organisations, electronic archives management encompasses the activities of electronic records appraisal, disposal programming (taken to include the development of programs for the hardware software migration of archivally important data) and the facilitation of preservation and access. The article argues that the contemporary emphasis by archivists on the life cycle data management approach to electronic records, regulation and public sector based electronic archives programs are insufficient to improve performance in electronic archives management. Archivists need to learn from micro-economic theory that a market based approach is required if any real progress is to be made. The author also suggests that the basis of this approach lies with the development of software tools and related services, which transform electronic archives management from a good with a positive externality, to one with a more pronounced private goods characteristic.<sup>1</sup>*

IN DISCUSSIONS OF THE ARCHIVAL IMPLICATIONS of computer based information systems technologies, archivists have primarily focused on information technology issues and more recently on the role of electronic recordkeeping in organisations and society. While the profession as a whole seems to have made a quantum leap in its understanding of digital technologies and the technological parameters for preserving and accessing digital information, none of this has been accompanied by any substantial expansion in electronic archives management. Three decades since the commercial introduction of digitally based information systems, only modest activity can be reported, primarily based on national archives which play host to small and inadequately funded custodial programs.

In as much as archivists think at all about program failure in electronic archives management, they are inclined to think about custodial and non-custodial strategies, design phase intervention, transforming information systems into electronic recordkeeping systems and a variety of other methods related issues. In a public policy sense, the problem of program failure is seldom addressed. Such thinking as there is, can broadly be categorised in terms of two schools—*laissez faire* and *interventionism*.

### *Laissez faire*

According to *laissez faire*, the failure to provide meaningful responses to the problems of electronic records is not a problem with the profession or even program delivery, but with the technology itself. The hardware/software dependency characteristic of digital records, their relative fragility compared with paper (text) records and other technology factors *determine* the archival dilemma. In such a scenario, archivists may attempt to persuade IT professionals that their own self-interest lies with taking archival concerns seriously in systems design, but ultimately the market itself must fix the problem through defining a collective self-interest in electronic archives management and the related idea of electronic recordkeeping (e.g. as necessary for organisational accountability).

This way of thinking is not unique to archivists. The idea that if a problem is left to fester long enough, people will discover their own self-interest in fixing it, has obvious appeal in many public policy decision making contexts where society's 'vital interests' are seen not to be at stake. While some archivists consider technological determinism as sufficient justification to do nothing (or to implement traditional solutions such as hard copy print-out wherever a problem arises), others hope to persuade the IT community through conferences and seminars (an activity most appropriately described as coalition building) to 'get its act together' i.e. to take on board our concerns and incorporate them into systems design. Indeed, this educating mission has become the main focus of activity, far outstripping efforts in actual program delivery.

### *Interventionism*

Informed with a view that the market will not fix itself, and that coalition building is a necessary but insufficient condition to address market failure in electronic archives management, some archivists argue for intervention. Government must either regulate or provide electronic archives management as a public good.<sup>2</sup>

## A brief history of regulation and public provision

Regulation may be thought of as actions taken or commands issued by government which affect the market for a particular good or service.<sup>3</sup> The modern idea of a public archival agency, established under statute and empowered to provide for the disposition of public records and their subsequent management, is an essentially interventionist or regulatory notion. The origins of the modern period in *archival regulation* can be traced to the establishment of the Archives Nationales de France in 1789 and enactment of archives legislation (7 Messidor Ann 2) by the National Convention on 25 June 1794.<sup>4</sup> The revolutionary laws and decrees which established the French national archival system gave expression to the revolutionary ideals of popular sovereignty and the supremacy of scientific rationalism, ideals with significant implications for both private and public recordkeeping. In the long run, however, the notion of private property rights has mostly precluded the development of legislation determining the quantity of archives management carried on by private sector firms and by individuals.

Public records and archives law directly affects the market for archives management. Of course, the number of laws affecting recordkeeping in private and public sector agencies is much greater. In a recent article, Phillip Reynolds suggested that in Australia over sixty separate Federal and State Acts contain provisions that relate to the creation and maintenance of records.<sup>5</sup>

Beginning in the 1970s but more seriously since, archivists have focused on public records law and aimed to make it comprehensive of electronic records issues. Regulatory outcomes have included:

- the inclusion of electronic documents as forms of documentary materials falling within the statutory definition of records (and by extension public records); and
- the legislative provision of powers to establish standards for public recordkeeping.

By the amendment or enactment of archival legislation which is specifically inclusive of electronic documents, archivists have aimed to bring computer based information systems and the electronic documents they create under control, especially the key archival functions of appraisal and disposition. In principle therefore, in many national and subordinate jurisdictions, electronic public 'records'<sup>6</sup> can be appraised as having continuing value, and their disposition determined accordingly.

While little exercised, the power to establish standards for public recordkeeping is viewed by many archivists as holding the key to electronic archives management in the public sector. In theory, archivists might use such a power to influence systems design, agency electronic document and records management practice, system procurement and so on. Considering the case of electronic mail for example, archivists might form a view that current generation systems do not fulfil the functional requirements for electronic recordkeeping,<sup>7</sup> and postulate design standards forming the basis of public sector tender specifications for such systems. Archivists might also use such a regulatory power to require agencies to maintain metadata systems forming a logical gateway to, and furnishing an understanding of the data they create. According to Wallace, metadata

renders the data understandable and locatable, serving simultaneously as a description and a locator device. Lacking it, the data exist without structure and remain uninterpretable and unretrievable. Metadata is intricately interwoven with the data and an organisation's ability to manage its information resources. It provides the means for representing the data as it was originally seen by its creators and users.<sup>8</sup>

In order to remotely access agency metadata through computer networks, Parrott concludes that the Government Open Systems Interconnection Profile (GOSIP) data communication standard in the medium term, and gateway solutions in the short term, are likely to form the basis of interconnectivity.<sup>9</sup> In this sense, the pursuit of an electronic archives management objective is linked to a wider standards issue involving open systems.

### **The *laissez faire* vs regulation debate**

Clearly, archivists need to know whether if left long enough, the market will fix itself, whether pursuit of regulatory mechanisms is required, or some other approach is necessary to deliver the socially optimal level of electronic archives management (a level not empirically determined here, but assumed in cost-benefit terms to be greater than the current very low level). In this sense we need to discover not only the correct *archival methods* to solve the problem, but the correct *public policy* approach to address a problem in market failure.

While the idea of micro-economic analysis may be alien to archivists, the notions of *laissez faire* and interventionism as panaceas for market failure have their origin in the public policy implications of neoclassical micro-economics. In micro-economics, *laissez faire* refers to the idea that markets in the long run will fix themselves and that intervention is distortionary or even

counterproductive. The idea that *regulation* or public provision are appropriate and efficient remedies to market failure comprises the countervailing view.

### **A micro-economic analysis of electronic archives management**

In micro-economics, analysis begins with the characteristics of electronic archives management as a good or service. In this sense electronic archives management can be regarded as a private good with a considerable positive externality (describes the situation of a private or public sector firm which operates its own electronic archives management program and for which the private goods characteristic is predominant). More commonly, electronic archives management might be characterised as a mixed or even public good, the latter describing the situation where an organisation has ceased to exist leaving behind records or continuing value.

### **Market failure and private provision**

Put crudely, the notion of a positive externality in micro-economics means that companies or individuals who own the good can appropriate some, but not all of its benefits. In other words the benefits of electronic archives management overflow to others. This is a fancy way of saying something we all understand to be implicit in the very nature of archives, namely, that they are an asset of society, and not just of their creators or custodians. For example, a large public sector or private sector corporation which supports its own 'in-house' archives management program, may expect to appropriate some of the benefits of that program (public relations, improved records management, improved organisational accountability etc.), but many of the benefits will be enjoyed by the community. In practice, the community cannot be made to pay for the benefits it receives, a very critical factor since in electronic archives management the costs of hardware/software migration, networked access etc. may be substantial for some kinds of computer based information systems.

Viewed in this way, the circumstances of market failure in private provision of electronic archives management are plain. While organisations which create records are expected to pay the costs of electronic archives management, they are unable to fully appropriate the benefits. Inevitably, the externality leads to a low demand for electronic archives management and an almost total absence of private sector provision (the possibility of a firm delivering the service profitably is minimal). A private sector firm which articulates an organisational need for electronic archives management may fulfil this requirement 'in-house', but is likely to give no consideration whatsoever to

society's interest in access or preservation, and is likely to pursue electronic archives management only in relation to a very small subset of its computer based information systems.

### **Market failure and public provision**

The analysis also leads us to expect that in the public sector, where considerations of efficiency are less important than in the private sector, and the interests of society are in principle (but perhaps not in practice) paramount, that electronic archives management will be carried on in some form. Indeed a survey of program delivery reveals this to be the case. The classic observation of market failure, however, continues to apply. Even in the relatively advanced and affluent western liberal democracies, public sector programs are small and incapable of responding meaningfully to a problem extending across hundreds of agencies and thousands of information systems in any given jurisdiction.

Why is public sector provision also a miserable failure? Public policy analysis suggests that in the absence of any decentralised market mechanism to accurately measure the tastes and preferences of citizens for the services government provides, the allocation of resources is determined by strength of preference measured through interest group politics and capture of the political process and media. Since archivists are not adept at interest group politics, and are often constrained by conventions of public sector anonymity, they are compelled to rely upon coalition building as the primary means of achieving their objectives, in this case with IT professionals.

However, the value of such coalitions in a public policy sense is open to question. While the providers of goods and services in the IT industry have some undisputed power over information policy, the IT profession itself has very little. In this sense IT is market, rather than interest group driven. Furthermore, the interests of IT professionals may be said to primarily lie with the creation and maintenance of information systems intended to fulfil an information management objective related to a business goal. In this way, their interests are closely identified with what archivists see as the short run view, rather than the long run life cycle data management view.

### **Remedies for market failure**

The value of micro-economic analysis to archivists has been construed not just in analysing failure, but in suggesting remedies. Essentially, the nature of this failure in the case of electronic archives management has been described

in terms of the characteristic of electronic archives management as a good, i.e. as a good with a substantial positive externality. For archivists then, the important question is what can we learn from the interaction of micro-economics and public policy, which might assist us in developing tactics to increase the level of electronic archives management to a socially optimal level?

### **Laissez faire—remedy or recipe for inaction ?**

The question has been posed, if archivists do nothing, will the market fix itself of its own accord? In terms of the analysis thus far, the answer appears to be a resounding no. Notwithstanding the possibility of unforeseen technological innovation, the characteristics of electronic archives management as a good suggest little incentive for increased provision. Furthermore, the culture of the IT industry suggests that changes in information technology architecture (technological innovation) likely to reduce the cost of electronic archives management will be slow in coming. We need only look to the relatively slow progress in adoption of the open systems environment (OSE) expected to be firmly in place by the 1990s. And while great hopes have been expressed for a cooperative approach to EDI standards, these standards are generally frowned upon in the IT community as anti-innovative and therefore undesirable. In this sense the recent controversy over the future of GOSIP should be instructive.<sup>10</sup>

### **The Pigovian subsidy**

Where the case of positive externality applies, the classic micro-economic panacea involves a so-called Pigovian<sup>11</sup> subsidy intended to enable production at the socially optimal level. Could firms be subsidised to establish programs of electronic archives management? Such a subsidy need not be real, but implemented say, for example, through the taxation system.

The Pigovian subsidy approach correlates well with the non-custodial model widely postulated by archivists as forming the ideal basis of electronic archives management strategy. However, in all but a few cases it is unlikely that the social benefits to society would be assessed as outweighing the social costs. Another problem concerns property rights. If a public subsidy is provided, then this would have to be at the cost of diminishing private property rights, a condition that private firms may find difficult to accept.

## User pays

The practice of user pays has become an established way of dealing with the problem of mixed goods. For example, since 1989 higher education students in Australia have been obliged to contribute to the costs of government provision of tertiary education through the higher education contribution scheme, popularly known as HECS. Logic here is based on the observation that universal price-free provision financed by a range of taxes on income, wealth and commodities will lead to over use and hence inefficiency in an allocative sense. The user charge is intended to reflect the personal benefit gained from university degrees; with the remainder of the cost being met by the community, which derives a collective benefit.

Unfortunately, the characteristics of electronic archives management do not currently conform with the mixed good profile of education. The users of archives, if asked to pay, are unlikely to do so. An interesting question, however, is if the characteristics of the good could be changed to increase the private goods characteristic, could this provide the basis of a remedy?

## Regulation

In common with other professional groups which have identified market failure in the provision of a service which forms the basis of their livelihood, archivists have looked to *regulation* as a means of improving both the efficiency of the market and also of advancing their professional interests. Can regulation form the basis of a remedy?

Assuming *ceteris paribus*, experience gained in the past with paper based archives management might be taken to be a reliable indicator of likely prospects. Our question then becomes—how efficiently has regulation performed as a means of securing socially optimal outcomes in archives management?

Self evidently, public records based regulation has had no impact on private sector behaviour, where governments have been unwilling to regulate, preferring instead to offer rudimentary public provision. Even within the mainstream public agencies, there is little evidence to suggest that regulation is taken seriously by the regulated or pursued aggressively by the regulators. Case studies such as Steinwall's account of appraisal policy for FBI case files<sup>12</sup> and the PROFS affair<sup>13</sup> suggest the essential weaknesses of the regulatory approach in terms of what Baumol<sup>14</sup> called 'capture' — the way in which the regulators become captured by the industry they are established to regulate.



Regulation has also failed because the resources available to enforce it have been under supplied. Consequently, as Frost<sup>15</sup> and Hurley<sup>16</sup> conclude, important regulatory instruments such as records disposal scheduling have not worked.

## Conclusion

Public policy settings for remedying market failure in electronic archives management based exclusively on *laissez faire* or regulation are unlikely to increase the quantity of electronic archives management to a socially optimal level. If the market is left to its own devices as prescribed by *laissez faire*, the short run view is likely to prevail, because of the essential unrecoverability of costs associated with electronic archives management. Similarly, a purely regulatory based approach to electronic archives management is unlikely to attract the resources necessary for success and may even be captured by the regulated, effectively defeating its purpose. What options does this leave us with for addressing the problem of market failure? For example, if the analysis suggests that the benefits of electronic archives management are currently insufficient to encourage increased provision, does any way exist of increasing the private goods characteristic of electronic archives management?

Asking such a question amounts to re-focusing attention on the search for a market based solution to a problem in market failure. In principle, a market based solution is likely to be more effective, because it tackles the root causes of failure—appropriability and cost. However, the question posed is not new, and has been addressed in the context of paper based archives management in the past, with limited success. Has anything changed?

Clearly, archivists need to look at new technology and its potential to change the characteristics of electronic archives management. Consider, for example, the possibilities afforded by network technology and the so-called information superhighway. Improvements in the rate of data transmission and network services (to some extent already evident through the introduction of ISDN) are likely to result in large volumes of data, including complex documents, being moved about society. Network penetration is likely to reach ordinary citizens, who will no longer own television sets, desk top computers and telephones, but a new generation of technology which combines the attributes of all three (a phenomenon of technological convergence).

In such a society, it is reasonable to assume that organisations and citizens will have both the technological means and incentive to use shared, decentralised electronic document depositories as part of their recordkeeping. In business, these depositories will operate 'in-house' for the sharing of

corporate information, and will be 'out-sourced' for vital records protection or backup. In the community, electronic document depositories might be used in place of local retention of data (provided such depositories are regulated to ensure privacy and ownership), for backup or security purposes, or document interchange. How is this important to electronic archives management? In the distributed information processing environment of the future, electronic document depositories or 'data stores' could form a locus for archival intervention, as well as serving a business purpose. As a service offered by the company which owns the depository, electronic archives management might be offered profitably, subject to the availability of software tools and acceptance of standards enabling cost reduction.

Implemented as an extension of existing profit based network service provision<sup>17</sup> involving other information services, electronic archives management (at least for relatively independent formats) should no longer exhibit the same cost disadvantages which currently characterise conventional archives management. Storage costs should be greatly reduced for most users compared with paper based storage, and recoverable by the service provider as part of the general service fee. Assuming software tools enabling the faithful rendering of context and the intelligent analysis of documents, costs associated with description might also be minimised.

In broad terms then, archivists should give careful consideration to the possibility of adopting a market based approach to solving the problem of market failure in electronic archives management, based on the exploitation of the potential of new technology. To the extent that archivists are able to attract subsidies, given the current state of technology and characteristics of electronic archives management as a good, the analysis suggests that such subsidies are best spent on research and product development in partnership with industry, rather than the expansion of token custodial public sector programs. The idea that archivists should invest their scarce resources in research and product development, rather than service provision might seem unorthodox, but really amounts to nothing more than an evolution of the existing emphasis on electronic recordkeeping and non-custodial methods.

## Endnotes

- 1 In micro-economic theory, a private good is characterised by appropriability and exclusion. The owner of the good can appropriate all the benefits that come from use of the good, either in production or consumption. Exclusion refers to the ability under prevailing property rights to exclude others from enjoying the benefits of the good. For a discussion of the characteristics of goods and services and their relationship with market failure see William J. Baumol, et al., *Economics: Principles and Policy*,

Harcourt Brace Jovanovich Group (Australia) Pty. Ltd., Marrickville, NSW, 1992, pp. 688-9.

- 2 *ibid.* The characteristics of a public good are those of non-depletability and non-exclusion. Because of these characteristics, users cannot be charged for their use of public goods and hence public goods are not supplied by the private sector. In this sense public goods are a classic case for public sector provision. Many archivists are inclined to see archives management as an essentially public good provided by the public sector through state owned agencies.
- 3 *ibid.*, p. 701.
- 4 See Ernest Posner, 'Some Aspects of Archival Development since the French Revolution', *American Archivist*, vol. 3, no. 3, July 1940.
- 5 Phillip Reynolds, 'The Legal Risks of Inadequate RM', *Informaa Quarterly*, vol. 8, no. 4, Nov. 1992, pp. 15-18.
- 6 Increasingly, archivists make distinctions between electronic documents and electronic records. This is somewhat confusing in terms of archival legislation where the notion of a public or federal record in electronic format does not encompass such a precise understanding. For a discussion of the distinction between electronic records and documents, see David Roberts, 'Defining Electronic Records, Documents and Data', *Archives and Manuscripts*, vol. 22, no. 1, May 1994, pp. 14-27.
- 7 These requirements are discussed by David Bearman in 'Record Keeping Systems', *Archivaria*, no. 36, Autumn 1993, pp. 16-35.
- 8 David A. Wallace, 'Metadata and the Archival Management of Electronic Records: A Review', *Archivaria*, no. 36, Autumn 1993, p. 93.
- 9 Keith Parrott, 'The Networked Access Model', in *Managing Electronic Records: Papers from a Workshop on Managing Electronic Records of Archival Value*, eds Dagmar Parer and Ron Terry, Australian Council of Archives Incorporated and Australian Society of Archivists Incorporated, Sydney, 1993, pp. 111-114.
- 10 See John Hilvert, 'Government gets jitters over GOSIP', *The Australian: Computers and High Technology: Open Systems*, September 6, 1994, p. 3.
- 11 Arthur Cecil Pigou (1877-1959) is generally credited with the first theoretical exposition of approaches to the problem of externalities in micro-economics. See A.C. Pigou, *Essays in Applied Economics*, P.S. King and Sons, London, 1993.
- 12 Susan Steinwall, 'Appraisal and the FBI Files Case: For Whom do Archivists Retain Records?' *American Archivist*, vol. 49, no. 1, Winter 1986, pp. 52-63.
- 13 United States District Court for the District of Columbia: Scott Armstrong, et al., v. Executive Office of the President, et al. Civil Action No. 89-142 (CRR). In his judgement, Judge Richey concluded 'The duty of the Archivist and the defendant agency heads to prevent the destruction of federal records has been violated in this case with the result that the Court is compelled to grant the Plaintiffs a declaratory judgement to that effect. The Court finds that the Archivist has breached his statutory duty to prevent the destruction of federal records'.
- 14 See William J. Baumol, 'State enterprise and de-regulation' in *Papers presented at a conference ... held at the Windsor Hotel, Melbourne on 27 January 1983*, Monash University Centre of Policy Studies, Special Study no. 5.
- 15 Eldon Frost, 'A Weak Link in the Chain: Records Scheduling as a Source of Archival Acquisition', *Archivaria*, no. 33, Winter 1991-92, pp. 78-86.
- 16 Chris Hurley and Sue McKemmish, 'First Write Your Disposal Schedule', *Archives and Manuscripts*, vol. 18, no. 2, November 1990, pp. 191-201.
- 17 Compuserve and Apple's eWorld are examples of private sector profit based network information services.