

First Dr. L.M. Singhvi memorial lecture on
‘Law, Technology and Society: Its dynamics’

Delivered by Dr. A.P.J. Abdul Kalam, Former President of India

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Presidential address by Justice K.G. Balakrishnan, Chief Justice of India

Dr. A.P.J. Abdul Kalam /

Dr. Abhishek Manu Singhvi / Mr. P.H. Parekh / Mr. Sushil Kumar Jain,

Esteemed members of the legal fraternity and all those present here,

I am happy to participate in the first memorial lecture initiated in memory of Dr. L.M. Singhvi. Dr. L.M. Singhvi was one of India’s eminent lawyer, who had worked in various fields. He rendered an exemplary service by representing our country abroad in his diplomatic career. As a diplomat, he tried to earn name and fame for our country. For someone who was always ahead of his times, it is only appropriate that the topic for this memorial lecture deals with the relationship between law, technology and society.

Dr. A.P.J. Abdul Kalam is always ready to share his deep insights and inspirational suggestions. After an illustrious career as a research scientist in the Defence Research and Development Organisation (DRDO), Dr. Kalam occupied the highest office in our country and gave it a new profile. Through his books and frequent interactions with citizens all over the country, he has clearly inspired millions to work towards a better future for our society.

Coming to the theme of today's lecture, I would like to offer some general insights into the relationship between 'law', 'technology'¹ and 'society'. There are two approaches for examining the interface between these concepts:

- The first approach is to evaluate how technological developments are transforming the functioning of the legal system. The most prominent aspect in this regard is the impact which information and communication technologies are having on the administration of courts, changes in procedure, approaches to research and in the functioning of lawyers' offices, law firms as well as in legal education.
- The second approach is to examine how laws try to keep pace with technological changes. With the emergence of newer technologies, uncertainties arise with regard to the application of existing laws and occasionally there is a need to create new laws to regulate their use. The need for regulating new technologies is usually prompted by social and cultural perceptions about the advantages of a particular technology or alternatively the scope for its misuse. Such regulation could be in the form of encouragement, restrictions or even prohibition on particular technologies. On one hand, laws and policies can be structured to encourage innovation in particular fields of technology, through means such as government subsidies, tax concessions, protection of intellectual property rights and provision of funds and research facilities among others. On the other hand, the

¹ A definition of 'Technology' proposed by Donald Schon reads as: *'Any tool or technique, any product or process, any physical equipment or method of doing or making, by which human capability is extended'*.

growth and use of certain technologies can be curtailed in different ways through means like safety and health regulations, criminal sanctions for misuse, higher taxation rates or even outright prohibitions. It is evident that decision-making institutions such as legislatures, courts and regulatory agencies are required to examine the constant interaction between the forces of technological change and social attitudes.²

This interface between law and technology is a vast and constantly growing subject of legal practice as well as scholarly study. Let me first offer a brief description of how information and communication technologies are transforming our legal system for the better.

How is technology transforming the legal system?

In respect of the administration of courts in India, all of you are well aware of the *E-Courts* project launched last year. Its' objective is the whole-scale computerisation of the Indian judiciary in aspects such as filing of pleadings and documents, allocation of cases to benches and online tracking of proceedings among others.³ E-Filing has already been introduced in the Supreme Court and will soon be extended. This method greatly reduces the inconvenience caused to advocates and litigants in the course of filing documents. The computerised allocation of matters prevents manipulation

² Refer: Gregory N. Mandel, 'History Lessons for a General Theory of Law and Technology', 8 *Minnesota Journal of Law, Science and Technology* 551-570 (2007)

³ The '*National Policy and Action plan for implementation of Information and Communication Technology in the Indian Judiciary*' was drafted by an E-Committee headed by Justice G.C. Bharuka (Retd.), which also consisted of three specialist members. The E-Committee submitted a report to the then CJI on 11.5.2005, which after the requisite consultations was evolved into the policy that was approved on 4.8.2005. This led to the subsequent launch of the *e-Courts* project in July 2007.

for selective allocation of matters and also factors in the respective judges' designated areas of expertise. The online tracking system allows any individual to follow the progress of a legal proceeding through its various stages. However, a note of caution must be expressed about electronic filing for documents in all categories of legal proceedings. In many U.S. jurisdictions, litigants have alleged that their 'right to privacy' was breached since the documents which they had filed in the courts became 'public records' and were made freely available on the internet. This problem should be avoided in the Indian context.⁴

The tremendous communicative and distributive power of the internet is also being relied on by the judiciary. The cause lists, judgments and orders of the Supreme Court, all the High Courts and some selected District Courts are freely available through the JUDIS (Judgment Information System) website. The next objective is to ensure that such data for all courts and tribunals in the country is made freely available online. The easy access to legal materials on the internet is re-shaping the way legal research is being done by legal practitioners, in academia and by the general public as well.

In many courts, lawyers' offices and law college libraries, expensive subscriptions for hard copies of foreign law journals have been replaced by the use of commercial and academic databases such as Westlaw, LexisNexis and Manupatra among others. These databases provide ready access to a wide array of statutes, precedents and commentaries from several jurisdictions. A significant volume of international and comparative legal

⁴ See: Richard L. Marcus, 'The impact of computers on the legal profession: Evolution or Revolution?', 102 *Northwestern University Law Review* 1827-1865 (Fall 2008)

materials are also freely available since most international adjudicatory bodies and Constitutional Courts of various countries make their judgments available on the internet. Free-to-access databases such as the Social Sciences Research Network (SSRN) and ‘blogosphere’ have created an effective medium for practitioners as well as academics to freely share and collaborate amongst themselves. The internet has also greatly enhanced the efficiency of commercial law firms and enabled the emergence of the Legal Process Outsourcing (LPO) sector.

Practicing lawyers have a much wider array of sources available to them and as a consequence there has been an upsurge in the citation of foreign cases and law review articles in submissions. The expectation is that with better research facilities, the quality of submissions as well as decisions should improve. There are of course some criticisms that the over-reliance on computers could stunt the ability of individuals to work with manual sources, especially in the subordinate courts – where access to internet resources is limited. It would be fair to say that present-day legal practitioners need to be well versed with manual as well as digital research methods in order to be successful.

The more dramatic impact of technology is however unfolding in the domain of procedure. For instance, investigative agencies have increasingly come to rely on forensic techniques such as analysis of fingerprints, voice, handwriting, blood samples, DNA and other bodily substances for evidence-gathering. Software is also used for re-constructing the images of suspects and aiding investigation. As newer technologies are introduced to assist investigation agencies, it is important to not be blindly enthusiastic about

their reliability. The use of scientific techniques holds immense promise in the criminal justice system, but before accepting each technique we must examine it critically in light of the constitutional rights granted to citizens and the requisite evidentiary standards.⁵

A less controversial application of technology in the domain of procedure is the use of video-conferencing and recording technologies. The use of video-conferencing can greatly reduce the costs associated with transporting witnesses in far-off locations as well as in instances where witnesses are frequently required to attend the Court. In *State of Maharashtra v. Dr. Praful B. Desai*,⁶ the Supreme Court has ruled that the evidence taken from a witness through video-conferencing is compatible with the requirements of the Code of Criminal Procedure.

⁵ See: 'Chapter 6: The Validity-Reliability standard for Scientific Evidence' in David H. Kaye, David E. Bernstein & Jennifer L. Mnookin (eds.), *The New Wigmore: A Treatise on Evidence – Expert Evidence* (New York: Aspen Publishers, 2004) at p. 187-240

⁶ (2003) 4 SCC 601

How do laws attempt to keep pace with technological changes?

With respect to how law seeks to regulate technology, there are various ways in which uncertainties arise before legislators, policy-makers and judges. To quote an academic Lyria Bennett Moses, there are four broad categories of legal problems that frequently follow technological change, namely –

- The perceived need for new or special laws to encourage, restrict or prohibit the use of a particular technology
- Uncertainties may arise in the application of existing legal rules and concepts in the context of newer technologies
- Existing rules may be perceived to be ‘over-inclusive’ or ‘under-inclusive’ when applied to practices and relationships shaped by newer technologies
- Certain legal rules may be rendered obsolete if their intended objectives cease to be relevant or the particular technology falls out of use⁷

From time to time, the development and dissemination of newer technologies requires the creation of new rules as well as adjudication of disputes on account of the newer activities and relationships generated by the same. For example, the introduction of the railways and the telegraph in

⁷ Cited from: Lyria Bennett Moses, ‘Recurring dilemmas: The law’s race to keep up with technological change’, *University of Illinois Journal of Law, Technology and Policy* 239-285 (Fall 2007) at p. 243

the mid-19th century prompted several legal questions. The construction of railway-tracks often involved the displacement of local populations and the running of trains also posed a physical danger to the health of employees and passengers. It took several decades for the evolution of rules in tort law which placed liability on railway companies and even more time for legislation that mandated safety measures such as the installation of effective brakes. In the early years of the telegraph, a prominent dispute was whether a telegraph company was a ‘common carrier’ for the purpose of determining liability in the event of failure, delay or mistake in delivery of messages. In answering this question, courts had to also consider whether the service of delivering messages could be likened to the ‘carriage of goods’.

In the 20th century, the evolution of automobiles, aviation, and telecommunications and information technology among others have required new legal rules. In most cases, legislative interventions intend to promote the beneficial use of technologies while placing checks on their misuse. The most common problem is that either enough is not known about the potential consequences of newer technologies or legislators do not possess sufficient expertise in the concerned areas. This perceived lack of expertise can be checked to an extent through the creation of specialist regulatory bodies which are then delegated the power to make rules in respect of particular technologies. The role of such regulatory agencies becomes increasingly important with technologies that have become commercially viable and are used by a large section of the population. For example in India - the various Pollution Control Boards (PCBs) have been delegated the task of prescribing and enforcing the limits on emissions from vehicles and industries. Similarly, the Telecom Regulatory Authority of India (TRAI) has been

entrusted the task of protecting the interests of service providers as well as consumers with regard to matters such as market-entry conditions, pricing of services and restraints on misuse such as telemarketing.

However, the empirical experience has been that even legal rules and concepts routinely lag behind technological changes. For instance, questions about the admissibility of electronic data as evidence and the validity of digital signatures for E-Commerce were resolved through the Information Technology Act enacted in 2000. It is widely felt that even this enactment is not sufficient to adequately regulate the constantly evolving categories of online transactions. While the internet is a powerful medium for circulating information for constructive means such as business, education, cultural pursuits and even governance functions – there is a clear need for legal interventions in some instances.

Just like ordinary acts of speech and publication, information circulated on the internet also has the potential of resulting in offences such as copyright infringement, defamation and obscenity. The immense reach of the internet ensures that the social consequences of these offences can be grave – as in the case of the circulation of hate speech and pornography. Furthermore, the easy availability of information about individuals collected through online advertising and social networking websites among other means – enables the violation of privacy. In such a scenario, it is open to either extend existing legal categories or to create new substantive laws. Since there are several intermediaries in the flow of information over the internet, the traditional rules of ‘vicarious liability’ cannot be blindly applied. It would also be unfair to apply ‘strict liability’ on internet service

providers (ISPs) for whom it may be impractical to monitor the circulation of offensive content by individual end-users. In the U.S.A. the Digital Millennium Copyright Act, 1998 created an intermediate solution by placing legal responsibility on Internet Service Providers (ISP) to monitor and remove offensive content through ‘Take-Down’ notices. In India, the law on the point is yet to be formulated but a reasonable balance should be drawn between ‘free speech’ rights and the legitimate social concern of curtailing hate speech.

The pharmaceuticals and biotechnology sector is another area which calls for drawing a balance between the forces of technological innovation and public interest. For example the Indian Patents Act was amended in 2005 to make the transition from a ‘process patent’ regime to a ‘product patent’ regime in pursuance of the obligations created by the TRIPS (Trade Related Aspects of Intellectual Property Rights) agreement made in 1994 under the aegis of the WTO (World Trade Organisation). The rationale for this change is to protect the incentive of foreign as well as domestic manufacturers to engage in original R&D (Research & Development) activities, while creating conditions for fair competition. However, a major criticism of this change is that it would drive up the prices of life-saving drugs since domestic pharmaceutical companies would not be able to cheaply replicate effective products and that they did not have the necessary expertise to develop these drugs on their own. At the international level, this concern about the increasing costs of pharmaceuticals in underdeveloped countries led to a compromise at the WTO level in the form of the Doha Declaration in 2003. This declaration provided for national governments to grant ‘compulsory licences’ to domestic manufacturers for replicating

patented drugs in the event of ‘public health’ emergencies. A similar safeguard was also adopted with the amendment to the Indian Patents Act. However, the cost of patented drugs continues to be a contentious issue in business, public health and academic circles.

The promotion of Genetically Modified (GM) seeds and plant varieties by large business concerns has also been the subject of intense debate in the public domain. On one hand the use of GM seeds in agricultural cultivation is marketed as being cost-efficient and high-yielding, while on the other hand concerns have been raised about diminishing soil fertility and the displacement of traditional cultivation practices. It has been frequently reasoned that the cultivation of GM crops in the long-run can adversely affect the livelihood of farmers and food security. Even though legislation has been enacted to protect the plant varieties locally developed by farmers, the practical problems generated by the cultivation of GM crops continuously pose challenges to law-makers and regulatory agencies.

Another biotechnology-related issue which is drawing a significant amount of attention is the conduct and consequences of clinical trials. On account of cost-advantages, India has emerged as a prominent destination for conducting ‘clinical trials’ for new pharmaceutical products and medical technologies. While the involvement of Indian institutions in such Research & Development (R&D) activities is desirable to an extent – there have been reports of harmful consequences suffered by individuals who were the subjects of such clinical trials. It must be emphasized here that the promise of monetary compensation can motivate numerous individuals to willingly

give their consent to be the subjects of such trials – even without understanding the consequences of the same.

Concluding remarks

There are legal challenges and social concerns pertaining to numerous other technologies – and it would not be viable to have an in-depth discussion in today’s session. However, I can point to a theoretical approach that has been suggested, namely that of ‘Technology-neutrality’ in policy design, legislative drafting and interpretation of statutes.

- The first dimension of this approach calls on legislators and administrators to treat competing technologies fairly and not give any undue preference to one over the other. However, in practice such ‘technology-neutrality’ is difficult to attain since some technologies also gain prominence on account of socio-economic factors like commercial viability, pricing, distribution, safety concerns and cultural preferences. Despite these market forces, governments should not unduly discriminate between competing technologies by way of methods like subsidies, grants, procurement policies and tax concessions.
- The second dimension of ‘technology-neutrality’ relates to methods of legislative drafting and adjudication. It calls upon legislators and regulatory bodies to draft rules in such a manner that they can be used expansively with respect to emerging technologies. This can involve a deliberate preference for ‘open texture’ terms that can be subsequently given different meanings, in light of new technologies. Likewise, this approach requires judges to adopt a purposive interpretation of

statutory provisions and creatively interpret existing legal terms and concepts.⁸

However, this approach of ‘Technology-neutrality’ has its limits and we are all aware that in some ways it is impossible to predict the path of innovation in the future. This calls for legislatures, courts and regulatory agencies to adopt a flexible approach while giving adequate consideration to the social impact of particular technologies. We must guard against the tendency to blindly accept all innovations in the name of development and instead engage in a thorough cost-benefit analysis of emerging technologies to design rules for regulating their use.

Thank You!

⁸ For examples of such ‘purposive interpretation’ of existing provisions, see: Justice G.P. Singh, *Principles of Statutory Interpretation*, 10th edn. (New Delhi: Wadhwa & Company Nagpur, 2006) at p. 244-247