1. In this note, I offer some preliminary observations on the potential impact of technology on the legislative process. I am President of the Society for Computers and Law and, since 1998, have been IT Adviser to the Lord Chief Justice. I write here, however, in a personal capacity. My background and training is in both law and technology, I have specialised in the interaction of these two disciplines since 1981, and have written numerous books on the subject.

2. I have two general messages. The first is that the legislative process, in the UK and around the world, has been subject to much less computerisation and analysis by technologists than other aspects of the law such as the courts and the legal profession. The field of what might be termed ‘technology-enabled legislating’ is in its infancy. Second, it has nonetheless been clear to me for some time that there is great potential here for the imaginative application of technology. There are existing and emerging systems that could greatly improve the legislative process. This is a field in which the UK could take a lead. However, to explore the potential thoroughly would be a significant project in its own right.

3. I note that the Inquiry is being undertaken in four distinct parts. From a technology point of view, there is a risk here of failing to identify systems that might operate across the entire legislative process. This is a common problem in systems analysis – if the analysis is undertaken in terms of traditional categories, this can limit the scope for fundamentally new thinking.

How to think about technology

4. Technology (by which I mean information technology) can be used in two quite different ways. The first is ‘automation’, when systems are introduced to streamline and improve existing ways of working. The second can be called ‘innovation,’ when technology fundamentally changes past practices or allows us to work in ways that simply were not possible before. The cash dispenser, for example, did not substitute or replace a bank teller sitting behind a hole in a wall, 24 hours a day. Instead, the technology enabled an entirely new way of providing a basic domestic banking service.

5. While automation is reassuringly familiar, the dominant trend in technology is very clearly towards innovation and transformation. This is apparent, for example, in transport with the advent of driverless cars, in manufacturing with its deployment of robotics, in banking and finance
with the introduction of systems like Blockchain, in the professions with the increasing use of artificial intelligence, and across government with the growing interest in machine learning. In the current context, the technical details of these technologies are less important than recognition that technology is bringing fundamental change across society. It is not simply automating our practices of the past.

6. All respectable investigations of trends in computer science confirm that the underpinning technologies (such as processing power and storage capacity) are evolving at an explosive rate. In turn, our systems are becoming increasingly capable. This means that they are taking on more and more tasks that could only have been undertaken by human beings in the past, or indeed tasks that could not have been undertaken at all. In relation to the legislative process, it is clear that this a data-intensive and document intensive enterprise, that there is a great deal of communication involved, and that it affects very large numbers of people - on the face of it, this suggests that the process is well suited to the application of technology.

Specific questions

7. I note that little evidence has been given to the Committee on the question of technology. This should not be construed as a lack of potential. Nor indeed does it betray a lack of interest elsewhere. There is a growing literature that addresses the possible impact of technology on democracy. Moreover, there is much research on the impact of social media on the democratic process. And there are events devoted to this subject too – for example, the recent Hansard Society meeting on ‘Future Parliament: Hacking the Legislative Process’.

8. With regard to Question 6 in the Call for Evidence, my preliminary investigations suggest that the level of use of technology in Parliament and Government is fairly modest today. Although there are promising new developments (such as the Parliamentary Digital Service and CommonsVotes, an app that shows how MPS have voted), the legislative process in the UK has not yet itself been directly affected a great deal by technology (which is not to say that Parliamentarians do not use laptops, handhelds, and the Internet).

9. Question 7, which asks how technology might support the development and scrutiny of legislation, is best answered under two headings: systems for the short and medium-term (leading to 2020) and systems for the long-term (in the 2020s).
Systems for the short and medium-term

10. Over the next few years, we are likely to see greater take-up of a first generation of system. By way of example:

For legislators, policymakers, and researchers

- Legislative information systems – an integrated (rather than piecemeal) set of tools, combining workflow, project management, calendaring, alerting, document production, bill tracking, online research, management information, secure messaging, and more (a tool-kit for legislators).
- Secure, collaborative, shared spaces for structured online debate of policy and legal issues.
- Computer-assisted drafting tools, including advanced tracking and comparison of revisions.
- The use of machine learning techniques to analyse the content of social media - systems that will undertake sentiment analysis across society or sectors of society in relation to policy proposals or bills in progress.
- Systems that allow users to run simulations (for example, economic, demographic, and policy models) to assess likely outcomes of proposed legislative changes.
- Predictive analytics to forecast reliably the views of voters.
- A closed social network of legislators worldwide (compare Sermo, a closed social network of 600,000 doctors in 30 countries), to share worldwide experiences of different policies and laws in action.

For citizens

- Apps for tracking the progress of bills and events in Parliament.
- The use of social media (such as Twitter) to enable greater participation – a ‘new’ channel to allow people to express their views on the need for legislation and to provide real-time feedback on bills passing through.
- Secure, collaborative, shared spaces for structured online debate of policy and legal issues (amongst themselves and sometimes with legislators).
- Secure, online voting.

Systems for the long-term

11. As we move into the 20s, and as artificial intelligence techniques become more refined, I predict more advanced applications:

- Automated drafting of legislation (work began on this in the 1960s).
• Automated textual analysis of legislation for inconsistency and ambiguity (using natural language processing techniques).
• Real-time monitoring of the actual impact of legislative change (using social media and machine learning).
• Systems that can, again in real-time, analyse the mood of the nation or of communities, and identify legislative defects and the need for legislative change (again, based on machine learning).
• Personalised updating - systems that will automatically notify people of new laws or changes in old law that directly affect them (Jeremy Bentham’s vision of full ‘promulgation’ will be realised).
• Embedded legislation – when legal provisions are integrated within organisations, buildings, working processes, thus not allowing non-compliance (for example, a car that cannot be driven above the speed limit).
• Dynamic laws and regulations – rules that automatically update themselves within parameters established by the legislators (triggered by the occurrence of events, as specified in terms of data).

12. Most policymakers and politicians will not be entirely familiar with such possibilities. But they are within our grasp. Alan Kay, a Silicon Valley pioneer, once said that ‘the best way to predict the future is to invent it’. This is apt. The challenge here is assuredly not crystal-ball gazing. It is finding the resolve to exploit emerging technologies in ways that specialists can already envisage.

Making progress

13. There is a temptation with technology, especially when the systems are not available off the shelf, to want to defer the whole topic for another day or perhaps to leave it to a younger generation. My feeling, on the contrary, is that technology is our generation’s legacy to 21st century voters and Parliamentarians. Whenever we are reforming, reviewing, or changing any current institutions or working practices, technology should be at the front of our minds. It may be, of course, and I fully sympathise, that some members of the Committee are not entirely at home with topics such as social media or artificial intelligence and, understandably, cannot comfortably see how technology might make a difference.

14. An analogy can be drawn here with current developments in the modernisation of our court system. I chaired the group of the Civil Justice Council that made the initial recommendations, in February 2015, for the introduction of online courts to England and Wales for the resolution of low value claims. Our proposals now have strong support from the Government and the Judiciary. Before we began our work, all focus was on automating the traditional court system. Few people beyond the small field of ‘online dispute resolution’ had any sense that there might be a workable technological solution. Our group came up with a fairly radical alternative; but that would never have come about had we not been given
scope to think imaginatively by several very senior and open-minded judges.

15. Many organisations introduce new technologies with great success when they are going through the discontinuity of a physical move or construction works. Thus, the refurbishment of Westminster may well provide an opportunity to introduce new working practices supported by technology.

Concerns

16. None of my enthusiasm should detract from the concerns that legislative technologies might pose. There will be justifiable worries about privacy, confidentiality, and security. There is the danger of information overload. We should be alive also to the needs of the digitally deprived. And we are all conscious that many public sector technology projects fail and that underinvestment in training often means that full advantage of new systems is not taken. But these are issues that need to be understood and evaluated. They do not justify rejecting the introduction of more technology in the first place.

Conclusion

17. We are living at a time of greater and more rapid technological progress than we have ever witnessed. It is highly unlikely that the legislative process will somehow be immune from technological change. While there is scope for automation in the short to medium-term, the 20s is likely to be a decade that will bring fundamental change to those legislatures that are prepared to engage in intensive, systematic, and open-minded study and discussion of the potential and limitations of technology-enabled legislating.

18. I regard your Inquiry as an unprecedented opportunity to consider the greater use of technology in the legislative process for the benefit of legislators and the public alike. I would be happy to give oral evidence or offer any help that is thought appropriate.

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