

China's Grand Design of People's Smart Courts

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Abstract

While online dispute resolution (ODR) and online courts have become a global phenomenon, China is unique in its way of constructing a “smart-courts” system. This paper argues that the Chinese smart courts are embedded in China's larger strategy of capturing new opportunities offered by the information and communications technology (ICT) revolution. Adoption of cutting-edge ICT by courts is not an initiative taken by the courts themselves; rather, it is a call from the party-state with strong policy push. The paper also makes two observations on the nature of smart courts in China. One is that Chinese courts are using ICT, especially artificial intelligence, both to enhance hierarchical control and to improve the formal quality of law. Another is that the “Internet courts” are established to solve disputes arising from online transactions, rather than serve as piloting courts with general implications for the shape of future courts in China. Therefore, while boldly experimenting new technologies (such as blockchains) in the judicial process, Internet courts in China are also charged with the responsibility of developing legal doctrines in cases within their jurisdictions. The case of China thus shows the profound interaction between law and technology. Whether technology is disruptive depends on human design and efforts.

Keywords: smart courts, ICT, ODR, artificial intelligence, online courts

1. INTRODUCTION

In a 1955 science fiction, wittingly entitled “The Cyber and Justice Holmes,” the protagonist Judge Wahlfred Anderson is as old-fashioned as many judges in the real world might be. He abhorred the idea of having machines deciding cases in the face of an ambitious campaign led by the state attorney to replace all judges with computers. His attitude changed after watching the defendant's performance in the case *People v. Professor Neustadt*. After defeating the computer in a courtroom competition proposed by Neustadt himself to prove his innocence, the defendant asked the computer, Cyber IX, a question: “What are the magnitudes of a dream?” Cyber IX, after a series of humming and twinkling, surrendered: “Problem unsolved.” Professor Neustadt then delivered a lecture to the court, saying that his computing capacity had been earned with a huge cost—the cost of humanity:

I defeated Cyber IX because I have wasted a man's life—my own! You all know that as a child I was a mnemonic freak, a prodigy, if you prefer. My mind was a filing cabinet, a fire-proof

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cabinet neatly filled with facts that could never kindle into dreams. All my life I have stuffed my filing cabinet. For sixty years I have filed and filed.

He proposed that, instead of seeing machine intelligence as a threat, we should consider it a blessing that can free humans to dream.¹ Judge Anderson was relieved. The cyber would do what it is best equipped to do, namely free human judges to exercise their empathy, sympathy, sense of justice, hunch, and imagination—in one word: humanity.

What might look like an unrealistic fiction is coming to become a reality with the breakthrough of artificial intelligence (AI) in recent years. When more and more “smart” devices are connected to the Internet, millions of petabytes of big data are generated every single moment. These data feed into the machines that can learn and do things that previously required human intelligence. Just like the first generation of machines, which replaced humans in doing many physical tasks, the new generation of machines is replacing humans in many types of “brain work,” including work related to legal practice. In *Lola v. Skadden, Arps, Slate, Meagher & Flom LLP*, the US Court of Appeal for the Second Circuit opined that “an individual who, in the course of reviewing discovery documents, undertakes tasks that could otherwise be performed entirely by a machine cannot be said to engage in the practice of law.”² This line of argument implies that the boundary between law and non-law jobs shall be determined by whether a job can be conducted by a machine. However, the boundary is quickly shrinking on the side of humans. The machine has come to undertake more and more tasks previously considered as essential parts of legal practice and judging, from contract review to opinion drafting. The question is not whether someday the machine can replace human judges, but whether they should.

In such a general background, what China is doing with its “smart-court” (智慧法院) project (SCP) is not just interesting, but also thought-provoking. With no strong tradition of “rule of law” and no established “legal nobility” (Max Weber’s “legal honoraries”³), the application of cutting-edge technology to judicial works encountered little resistance. Courts around China are creating expert systems to encode judges’ knowledge. Like-cases recommendation systems automatically push forward similar cases to the judges pondering over a particular case. E-filing, e-discovery, and online trial have become commonplace, with three “Internet courts” conducting most of the trials online. However, the main features of the Chinese courts, including hierarchical ordering of judicial organizations and policy-implementation functions of the courts, persist without any sign of resigning. Technology can facilitate, but not replace, human purposes. The application of technology in law is conditioned by institutionally embedded human purposes. Understanding the purpose and institutional settings of China’s grand design of smart courts is a prerequisite for predicting where it is heading.

The smart-courts initiative is part of a larger plan of informatization in China, which includes both industrial policies to push the development of information and communications technology and political design to boost the application of information and communications technology (ICT) in the whole system of government, including courts. Unlike the situation in many other countries, where the private sector is the major producer and

1. Riley (1955).

2. *Lola v. Skadden, Arps, Slate, Meagher & Flom LLP*, 620 F. App’x 37, 44 (2d Cir. 2015).

3. Weber (1978), p. 784.

consumer of ICT, government is first and foremost promoter and consumer of ICT products. Therefore, the first step towards a fuller understanding of the SCP is to delineate the policy push behind the whole scenario. Then we need to situate the SCP in the current round of judicial reform. The SCP was formally introduced in the process of judicial reform with its twin goals of delocalization and de-bureaucratization. A number of reforms have been conducted to free judges from local interferences and bureaucratic controls. The ideal is to allow judges more freedom to fulfil their essential role, namely judging. ICT is very helpful in this regard. Ideally, if the majority of tedious jobs of case management, form filling, and documents drafting can be automated, judges would certainly get their leisure and soberness to judge wisely and fairly. Furthermore, machines with the power of “reasoning” come closer than humans to the Aristotelian ideal of “law as reason free from passion.” Nevertheless, the SCP in China is not going in that direction. Smart technologies do free judges from many rote work but, in the meantime, it also facilitates hierarchical control and performance evaluation on judges. As human endeavours always do, the whole development is not linear, but multifaceted.

The faces of justice in a particular jurisdiction have always been defined by the nature of state authority and the structure of judiciary. Based on Professor Mirjan Damaška's typology,⁴ I shall argue in this article that the Chinese SCP is part of a larger scheme of state modernization. Damaška's model is particularly useful in this context because it situates judicial organization in its political settings and provides an analytically sound approach for us to understand the interaction between organizational structure and behavioural patterns of judicial decision-making. This model starts from two types of states: active and passive, informed by either socialist/progressive/egalitarian or liberal understandings of the nature of the state. The nature of the state constitutionally determines the functions of its judiciary. An active state involves its judiciary in policy implementation, while a passive state keeps the judiciary isolated from political function to become a neutral forum of conflict resolution. The judiciary can be organized in two ways: either hierarchically or coordinately. While the shape of judicial organization is not determined by the perceived function of the judiciary, a hierarchically organized judiciary is more suitable for implementing state policies. Measured by this ideal-type framework, Chinese judiciary can be characterized as a hierarchically organized policy-implementing system in an active state.

While people say that technology can be roughly categorized as facilitative, transformative, and disruptive in terms of its effects on the status quo, they usually pay little attention to the institutional settings in which the technology is applied. As Julie E. Cohen insightfully points out: “Information technologies are highly configurable, and their configurability offers multiple points of entry for interested and well-resourced parties to shape their development.”⁵ She suggests that “we must understand how the design of networked information technologies within *business models* reflects and reproduces economic and political power” in order to understand the future of law, which is befitting in a society dominated by market forces. However, business models are not the only thing we need to look upon in China. The SCP is a state-sponsored transformation of the shape of judiciary that brings the public and private sectors together in a joint venture. It is not to replace the hierarchically structured,

4. Damaška (1986).

5. Cohen (2019), p. 1, emphasis added.

policy-implementing judiciary with a flat online forum of dispute resolution. It is both a component in the larger scheme called modernization of state governance (国家治理现代化) and a business model created by the state to provide new opportunities for the tech companies in China to develop law tech with predictable profits.

After this introductory section, this article will delineate the policy push behind the SCP in Section 2, discuss how ICT enhances hierarchical control in Chinese courts in Section 3, analyze how courts in China take the opportunity brought by digitalization to improve the formal quality of judicial decision-making in Section 4, explain the role of Internet courts in China in Section 5, and conclude with Section 6.

2. POLICY PUSH

China is an active socialist state where the government is given a constitutional mandate to promote the modernization of industry, agriculture, national defence, as well as science and technology.⁶ Since the 1980s, China has been led by a cohort of technocrats with degrees in or proclivity towards engineering. In 1983, Li Keqiang, China's current prime minister and then a lecturer in Peking University Faculty of Law, co-authored an article entitled "Computerization of Legal Works," urging the adoption of computers in Chinese courts.⁷ Early in 1986, then-president of China's Supreme People's Court (SPC), Zheng Tianxiang, reported to the National People's Congress:

We have put the matter of modernizing court management in our agenda. We give priority to the tasks of enhancing information communications, improving judicial statistics, upgrading comprehensive analysis, in order to solve the problem of information inadequacy. Regarding the issue of using computers to facilitate court management and assist adjudication, the Supreme People's Court and high courts in various provinces has started to conduct research, draw plans and prepare to implement the plans within the constraints of our country's financial resources.⁸

In the middle of the 1990s, the informatization process of Chinese courts became real rather than theoretical. In August 1995, a piloting intranet was tested by Nanjing Intermediate People's Court, followed by court system in Shanghai and Beijing. At the very beginning, the principle of "consistent code, consistent data structure, and consistent applications" was formulated and followed, laying down a solid foundation for further development.⁹

The National Leading Team on Informatization was established in 2001 to guide and co-ordinate the joint efforts of various sectors in building up the information infrastructure, developing ICT, and deploying ICT products. In recent years, China has enacted a number of crucial policy documents to promote the comprehensive transformation of the economy and society in an increasingly digitalized world. "Made in China 2025" master plan (May 2015) and "A Next Generation Artificial Intelligence Development Plan" (July 2017), both issued by the State Council, are just two examples. The policy documents depict a three-step

6. Paragraph 7, Preamble, *The Constitution of the People's Republic of China*. For a general survey of the role of the Chinese government in promoting technological modernization, see Baum (2019).

7. Gong & Li (1983), pp. 16–20.

8. Zheng (1986), p. 13.

9. Cheng (1999), p. 57.

road map that includes keeping pace with leading AI technologies and applications in general by 2020; then achieving AI breakthroughs by 2025; and finally being the world leader in a domestic industry worth US\$150 billion by 2030. The general plan is to push China to the position of an “AI superpower.”¹⁰ The plan is not a daydream, but carefully executed step by step, from infrastructure construction to applications development. To take just one example, it is widely observed that China has been one of the leading forces to bring high-speed connections to its citizens: “China is installing twenty thousand last-mile fiber optic connections every single day.”¹¹ According to the latest report of China Internet Network Information, by June 2019, there were 854 million regular users of the Internet (netizens) in China, among whom 849 million accessed the Internet using smartphones. Although the Internet penetration rate reached 61.2%, it is unevenly distributed among urban and rural residents; 73.7% of Chinese netizens live in cities and only 26.3% live in villages in a country with a half-half urban and rural population.¹² In such a background, China has been taking an incremental approach to SCPs, with large cities leading the way in smart-courts construction and many rural areas still served by traditional courts.

The smart-courts initiative is part of China's larger plan of developing and applying information technology in every sector of society. It is an example to show China's consistent efforts of using a policy push to achieve industrialization and modernization. In developmental economics, such a strategy is called a “big push,” referring to the co-ordinated investment in various sectors to the effects of modernization of one sector enlarging the size of the market in other sectors. Such a process needs a strong government to implement industrial policies.¹³ China goes further in using the “big-push” strategy not only to incentivize economic development, but also to reform the whole system of governance. In this process, the government becomes the biggest investor and the biggest consumer of ICT products. The government procure cloud services, algorithms, and ICT equipment from the private sector, involving them in the smart-governance-infrastructure construction.

2.1 Constructing the Key Infrastructure of Judicial Technology

China has embarked on projects for the informatization of government since 1990. The first step is to build the infrastructure of an e-government, including an e-court. Since the 1990s, courts in China have been universally equipped with computers and these computers were wired. The second step is to digitalize government information, including court decisions. The once secret and inaccessible judgments suddenly became available in awe-inspiring numbers. The third step is to design algorithms to collect, archive, streamline, integrate, and analyze these digitalized data. The fourth step is to connect the dots in the governmental (including judicial) process to form an Internet of judicial “things.” The fifth step is to utilize all the available cutting-edge technologies (from AI to blockchains) to make the Internet smarter.

10. Lee (2018), p. 17.

11. Crawford (2019), p. 9.

12. CNNIC (2019), p. 1.

13. Rosenstein-Rodan (1943); see also Murphy, Shleifer, & Vishny (1989).

On the basis of the developed physical infrastructure, China's courts have started to build a solid data infrastructure in recent years. The progress in informatization goes hand in hand with the current round of judicial reform, with transparency and accessibility as two of its major goals. One recent highlight is the Provisions on the Publication of Judicial Process Information by People's Courts on the Internet.¹⁴ The SPC has established a number of large-scale databases for publicly accessible information related to judicial process and court management, including China Judicial Process Information Online (中国审判流程信息公开网),¹⁵ China Court Documents Online (中国裁判文书网),¹⁶ China Judgements Enforcement Information Online (中国执行信息网),¹⁷ China Open Trials Online (中国庭审公开网),¹⁸ China Justice Big Data Service Platform (中国司法大数据服务网),¹⁹ and Legal Information: Data Network Service Platform on Application of Chinese Law (Faxin, 法信-中国法律应用数字网络服务平台).²⁰ The China Court Documents Online database alone contains more than 91 million pieces of court documents at this moment,²¹ including, but not limited to, judgments. In addition to these national databases, local courts have also established their own databases.²² These online platforms serve three purposes simultaneously: first, they are tools to achieve the goal of judicial transparency, providing judicial information, including synchronized open trials, to the public; second, they are also instruments to streamline judicial management and improve judicial efficiency; finally, they are providing judicial big data to feed machine learning and big-data analysis. For example, among the above-mentioned platforms, China Justice Big Data Service Platform and Faxin are not simply databases; they are judicial data service providers, using AI to analyze data and providing statistical and predictive reports. Among their various products and services, an intelligent like-cases search, similar-cases smart pop-up, litigation evaluation and prediction, and judicial statistics are some of the examples. Faxin developed Faxin outline and Faxin code, which summarizes the "key points" of reasoning in judicial judgments, which are considered to be very helpful for practising lawyers and judges in China.

2.2 Private–Public Cooperation in LawTech Innovation

Co-operation between the public and private sectors also takes a unique track in China due to the big push from the central leadership. Mr Cui Yadong, the former president of Shanghai People's High Court, recalled that iFlytech, a leading company in AI, especially natural language processing (NLP), played a central role in the 206 Project—a piloting project in the smart-courts scheme. From the beginning, iFlytech sent their programmers to work with judges and court staff as part of a research and development team: "iFlytek Co., Ltd had

14. 《最高人民法院关于人民法院通过互联网公开审判流程信息的规定》[Supreme People's Court Regulations on Publicizing Judicial Process Information on the Internet] (issued 4 March 2018, effective 1 September 2018).

15. Splcgk.court.gov.cn (2020).

16. Wenshu.court.gov.cn (2020).

17. Zxgk.court.gov.cn (2020).

18. Tingshen.court.gov.cn (2020).

19. Data.court.gov.cn (2020).

20. Faxin.cn (2020).

21. China Judgements Online (2020).

22. Hu (2018), p. 109.

appointed more than 300 technicians, including 79 technicians gathered in the Shanghai court base and 226 technicians as backstage supporters in the company headquarter.”²³ The judges told the technicians their needs and the technicians sought algorithmic solutions to solve judicial problems. This type of public–private partnership might be impossible in a liberal free-market society, because it is not totally based on contractual relationship. The final product was uncertain, and success was not guaranteed. The co-operation turns out a win–win result. According to iFlytek’s semi-annual revenue report in July 2019, the court service department of the company brought in ¥459 million revenue, increasing by 31.58% from the last half-year.

Other Tech companies with substantial smart-court services include Thunisoft (华宇软件) with its subsidiary Ailaw (元典) specialized in developing big-data analytics and AI systems for Chinese judiciary; Alibaba has a whole team to develop a “judicial cloud” and “judicial chain” for courts in Zhejiang; Tencent developed a judicial cloud platform to provide cloud storage, cloud computing, and AI services to courts around China; Baidu helped Beijing Internet Court to develop its “balance chain” (天平链) and provides AI-enhanced cloud services to a number of courts in China.

Public–private partnership is how Chinese smart courts are constructed and maintained. Although Chinese courts have their own supporting staff of technicians, this small group of people only got the capability of assisting judges to solve their computer problems. They do not have the resources and skills to set networks, design algorithms, and conduct big-data analytics. Such advanced technological services and products are provided by companies, the majority of which are private. However, the public–private division is blurred due to the active role played by the state to foster non-contractual co-operation between courts, universities, and companies.

2.3 Total Mobilization

The big push actually mobilizes every sector of society to achieve the goal of building up an ICT-enhanced modern state apparatus with its smart courts. Another example is the co-operation between the universities and the judiciary sponsored by the Ministry of Science and Technology (MOST). In 2018, MOST allocated a total amount of over 100 million RMB to three law schools to develop judicial technology. Southeastern University Law School received 71.24 million to develop a system of “Integrated Technology and Equipment to Enhance Accessibility to Justice in the Whole Process of Litigation” (面向诉讼全流程的一体化便民服务技术及装备研究),²⁴ Tsinghua University Law School received 36.98 million RMB to develop a “Model System of Key Technologies to Enhance Judicial Fairness and Access to Justice” (司法公正与司法为民关键技术与应用示范),²⁵ and Sichuan University Law School received an amount of 34.18 million RMB to conduct research on “Key Technology and Equipment to Support High Quality and Efficient Adjudication” (高质高效的审判支撑关键技术与装备).²⁶ Each law school co-operated

23. Cui (2020), p. xvii.

24. Seu.edu.cn (2019).

25. Law.tsinghua.edu.cn (2020).

26. Scu.edu.cn (2019).

with the courts in their own locations and with ICT companies of their choice. The results of their research have been directly incorporated into the smart-courts infrastructure.

The aforementioned examples show how the Chinese state uses “big-push” policies to mobilize every sector of society to participate in its SCP. In a liberal “neutral” state, the state cannot and will not mobilize such diverse forces to engage in its policy goal. For example, the UK government has also launched an online court project since the publication of “Online Dispute Resolution for Low Value Civil Claims” in February 2015.²⁷ In November 2015, the Spending Review of HM Treasury announced that the UK government would invest “more than £700 million to modernize and fully digitize the courts.”²⁸ Her Majesty’s Courts & Tribunal’s Service manages courts facilities. It is the major agency responsible for implementing digitalization policy in courts. However, given the division between government and the market, the digitalization of courts in the UK only goes as far as what the market can offer. It cannot bring the companies, the universities, and the courts together to conduct research and development on court-specific digital services and products. And few private companies in the UK have a specific court-services department. As Richard Susskind, who has been the technical adviser to the Lord Chief Justice of England and Wales since 1998, mentioned: there are two types of online courts. One is online judging, which “involves the determination of cases by judges but the parties do not gather together in a bricks-and-mortar courtroom.” Another is the extended court, in which “technology allows us to provide a service with much wider remit than the traditional court.”²⁹ Digitalization of judicial services in the UK largely means technical support allowing judges to do what they usually do on the Internet, rather than in a physical court. It is just like playing *Hamlet* online, rather than in a theatre. Alternatively, the Chinese SCP is not only about connecting, but also about transforming.

3. HIERARCHICAL CONTROL

Judicial organizations are either hierarchically structured or co-ordinately assembled. A hierarchically organized judiciary is characterized by its emphasis on collective purpose, systemic coherence, bureaucratic control, goal responsibility, piecemeal processing of documents, performance evaluation, and collective responsibility. According to Herbert Simon, when we say “the organization has a purpose,” we imply a notion of a hierarchy of decisions—each step downward in the hierarchy consisting in an implementation of the goals set forth in the step immediately above. Behaviour is purposive insofar as it is guided by general goals or objectives; it is rational insofar as it selects alternatives that are conducive to the achievement of the previously selected goals.³⁰ In a hierarchically organized judiciary, a strong sense of order and a desire for uniformity are what cement the judicial authority: “ideally, all are to march to the beat of a single drum.”³¹ Chinese

27. Civil Justice Council (2015).

28. HM Treasury (2015).

29. Susskind (2019), pp. 60–1.

30. Simon (1997), p. 4.

31. Damaška, *supra* note 4, p. 20.

judiciary is a typical hierarchical system with policy-implementation functions. Smart technologies enhanced hierarchical control within this system. Here are some examples.

3.1 Precise Allocation of Caseload

The last round of judicial reform has cut down the number of judges by 43%. With only 120,138 quota judges (or judicial post judges, 员额法官) around the country,³² trying over 20 million cases every year, case-load becomes a very urgent concern. Nearly every court in China now uses intelligence systems to manage the distribution of cases, taking into account not only the number of cases, but also the level of complexity, the average time for deciding various types of cases, the professional capacity of individual judges, etc. A typical AI model of case distribution consists four modules: a case module, a judge module, a comparison module, and an output module.

The case module takes three categories of factors into account: the type of cases, the expected time needed in deciding different types of cases, and the level of complexity of cases. Evaluation of these factors is usually done by expert judges. Numeric scores are assigned to each case automatically accordingly. The judge module is shaped by two parameters: workload and professional capacity. A judge's workload is calculated on the basis of her completed works and ongoing works in a particular period of time, and her capacity is determined by her educational background, professional experience, and past performance as a judge. These are dynamic parameters that are adaptive to changes. The comparison module situates the previous modules in a reference framework, comparing cases and judges within the same court or the same jurisdiction. The output module processes the data produced by the previous modules and generates suggestions on how to allocate cases to each judge. This module can be fully automated if so designed.

3.2 Performance Evaluation

Performance evaluation is a typical measure in a hierarchical system to assure goal responsibility. Although the SPC issued a notice in 2014,³³ calling for the cancellation of the ranking exercise of provincial high courts and abandonment of the "unreasonable evaluation index," the courts around China have since been developing a "more scientific" index. For example, while the number of cases solved per year is still the key factor, courts now use an actuarial model to calculate a judge's case-load. It divides the actual case-load with the so-called "judge work saturation rate" (法官工作饱和度). The saturation rate is calculated on the basis of several factors, including the case factor (how many litigations are involved, how many issues are in dispute, the nature of the applicable laws, etc.), the judge factor (taking into account every individual judge's educational background, the number of years he/she has been a judge, the level of mastery of judicial art, etc.), and the time factor (the percentage of working time a particular judge spends on adjudication, reading files, non-judicial work, etc.). Every judge therefore gets a score for his/her annual performance, which determines their career prospects.

32. Zhou (2018), p.1.

33. People.com.cn (2014).

3.3 Judicial Accountability

Judicial accountability is one of the key words in the current round of judicial reform. The policy statement is “Let judges be the decision-maker; let the decision-maker assumes full responsibility for the decision.” While judicial accountability in China previously depends on extra-legal factors, such as the “social effects” of a judgment, it is now moving towards an inner-system direction. One of the major mechanisms for judges to shield themselves from accusations of being uncountable is to locate their decisions in a reference framework of similar cases. This has been clearly stated in a guideline issued by the SPC.

“Supreme People’s Court Opinion on Implementing Judicial Accountability” (《最高人民法院司法责任制实施意见（试行）》) was issued in August 2017. Among other things, the Opinion provides:

judges deciding a case should conduct comprehensive search on all similar and related cases decided or deciding by the same court and generate a review report with the assistance from case handling platform, case files system, China Judicial Judgments Online, Faxin (Trust in Law), and Zhishen (intelligent trial).

The specific mentioning of several online platforms shows that these platforms have already become an indispensable part of China’s judicial system. Using these platforms by judges is not an option, but a duty. On the other hand, these platforms serve the purpose of shielding judges from the scrutiny of external criteria. As I will later make explicit, this new mechanism is the stronger force moving Chinese courts towards a case-law system than the sporadic guiding-cases system.³⁴

4. ALGORITHM-ENHANCED FORMALISM

The like-cases recommendation system (LCRS) based on machine-learning algorithms is one of the key components in the SCP. It can be considered as a system of horizontal precedent. While the guiding-cases mechanism has brought certain case-law elements into the Chinese legal system,³⁵ more significant changes in that direction have been effectuated by the prevalent use of algorithms in courts. However, this is not to say that China is adopting *stare decisis*. LCRS is enhanced by statistic algorithms to find regularities in cases, rather than a mechanism to follow the *ratio decidendi* of preciously decided cases. With the help of machine learning, judicial decision-making is moving towards a kind of formalism—not formalism based on syllogism,³⁶ which was typical in earlier generations of computerized legal-knowledge presentation, but a new kind of formalism made possible by the new-generation AI with the capacity for learning from human experience in the format of digital data. Holmes’s famous aphorism “the life of law has never been logic, it has been experience”³⁷

34. Since 20 December 2011, when the SPC launched the first set of guiding cases, 139 guiding cases have been issued. The limited number of guiding cases cannot provide guidance to judges in deciding tens of millions cases every year with very diverse factual and legal components. The guiding cases can be accessed at <https://www.chinacourt.org/article/subjectdetail/type/more/id/MzAwNEiqNACSYAAA.shtml> (accessed 24 April 2020). English translation can be found at <https://cgc.law.stanford.edu> (accessed 24 April 2020).

35. Jia (2016).

36. Susskind (1987); Leith (1990); Leith & Hoey (1998), p. 293.

37. Holmes (1881), p. 1.

can be technically modified to “the life of law is in logic saturated by experience, and in experience tidied up by logic.” As Kellogg argued: “The continuing function of law is the consensual finding of similarities.”³⁸ AI can find “consensus” in the form of shared patterns across a number of jurisdictions and through a long period of time. An author predicted:

this brings us to the possibility that at some point in the future the answer to a case no longer lies in an understanding of law, but in the algorithm statistics used to interpret the raw data of a case.³⁹

4.1 Judicial Knowledge Engineering

Deciding like cases likely and different cases differently got its own merits independently of the values of the common-law system. The first merit is related to equality: “as a moral matter, similarly situated parties should be treated alike; therefore, when two like cases arise over time, the later court should conform its decision to the decision of the earlier court.”⁴⁰ The second merit is related to generality:

If we attach to a legal system the minimum meaning that it must consist of general rules-general both in the sense that they refer to courses of action, not single actions, and to multiplicities of men, not single individuals-this meaning connotes the principle of treating like cases alike, though the criteria of when cases are alike will be, so far, only the general elements specified in the rules.⁴¹

The third is integrity: “Integrity demands that the public standards of the community be both made and seen, so far as this is possible, to express a single, coherent scheme of justice and fairness in the right relation.”⁴² Lastly, treating like cases alike also contributes to predictability and stability. According to Niklas Luhmann, the essential function of law is to provide stable expectations to the people in their social interactions: “Concretely, law deals with the function of the stabilization of normative expectations by regulating how they are generalized in relation to their temporal, factual, and social dimensions.”⁴³ Deep-learning algorithms can identify how courts treat the relationship between what one did and what one got in a more accurate way. They do not generate new principles, but find out how decision-makers attribute legal consequences to behaviours from an “external point of view.” They can effectuate treating like cases alike without stumbling into the philosophical swamp of what constitutes “like cases” and what it means to treat them “alike.”

Algorithms deployed in China’s smart courts are based on the so-called “Key factors trial” (KFJ, 要素式审判), which many courts were already applying before the SCP. According to late Judge Zou Bihua, who was the vice president of Shanghai People’s High Court before passing away at work and a tireless promoter of KFJ, courts should methodically apply nine steps of judgment: (1) fixing rights claims; (2) identifying the legal basis of rights claims; (3)

38. Kellogg (2018), p. 4.

39. Xu (2017), p. 69.

40. Alexander & Sherwin (2008), p. 36.

41. Hart (1958), p. 623.

42. Dworkin (1986), p. 219.

43. Luhmann (2004), p. 148.

identifying the legal basis for defence (or counter-claims); (4) analyzing the key elements in the applicable legal norms; (5) reviewing the soundness of the parties' claims; (6) sorting out the key issues on dispute; (7) examining the corresponding proof for key facts underlying each claim; (8) confirming the key facts; and (9) subsuming each key fact to each key element in the applicable legal norms.⁴⁴ KFT has been adopted by various judicial policies of the SPC, leading to a mechanism of distinguishing easy and sophisticated cases (繁简分流) and subjecting easy cases to summary procedure with AI-enhanced semi-automatic decision-making. On 12 September 2016, the SPC issued "Several Opinions on Further Development of Distinguishing Easy and Sophisticated Cases to Optimize Judicial Resources Allocation" [《关于进一步推进案件繁简分流优化司法资源配置的若干意见》].⁴⁵ The justification behind this new judicial policy is that the majority of cases (over 70%) are easy cases with undisputable facts and clearly applicable legal rules. For these cases, judicial process can become standardized, computerized, even automated. Significant judicial resources may thus be saved to allow careful deliberation on a small number of hard cases. Both dispute-resolution and standard-setting functions of the judiciary can be better served with such a differentiation system.

By breaking legally relevant facts into key factors and subsuming each key factor to a particular factor in legal norms, KFT provides a steppingstone to automate decision-making on easy cases. It is a method to develop legal ontology. In the AI context, an ontology is an explicit specification of a conceptualization.⁴⁶ To construct a legal ontology, the programmer can place the representations along an axis of increasing complexity and expressive power—atomic, factored, and structured. In an atomic representation, each state of the world is indivisible—it has no internal atomic representation structure. A factored representation splits up each state into a fixed set of factored representation variables or attributes, each of which can have a value. In a structured representation, entities such as buyers and sellers and their various and varying relationships can be described explicitly. Structured representations underlie relational databases and first-order logic, first-order probability models, knowledge-based learning, and much of natural language understanding. In fact, almost everything that humans express in natural language concerns objects and their relationships.⁴⁷ Deep-learning algorithms are very capable of extracting entities and their relations from a huge amount of data. Actually, judicial-entity (i.e. concepts or terms frequently used by the courts in their judgments) recognition, entity-relationship analysis, and automatic extraction of judicial key elements have become integral components of the smart-courts infrastructure in China.⁴⁸

Depending on the feedback loop, machine learning can take three routes. In unsupervised learning, "the agent learns patterns in the input even no explicit feedback is supplied." The most common unsupervised learning task is clustering: detecting potentially useful clusters of input examples. In reinforcement learning, the agent learns from a series of reinforcement—rewards or punishment. In supervised learning, the agent learns by examples: by observing

44. Zou (2011).

45. BJGY.chinacourt.gov.cn (2018).

46. Gruber (1993).

47. Russell & Norvig (2016), pp. 57–8.

48. Cui, *supra* note 23, p. 47.

some exemplary input–output pairs, the agent learns a function that maps from input to desirable output.⁴⁹ AI as applied in law generally adopts the approach of supervised learning. It needs tremendous human efforts to provide a teaching data set for the machine to learn from. Only with close co-operation between judges and technicians can proper judicial-knowledge examples be formulated and fed to the machines. There is common saying in the circle of judicial-knowledge engineers that “how much intelligence the machine has depends on how much human efforts have been spent” (有多少人工, 就有多少智能). Codifying judicial thinking in algorithmic terms forced judges to make explicit the grounds for deciding a certain allegation of fact as proven or not proven, and a certain interpretation of law as valid or invalid. Namely, we need a detailed description of the intellectual operations taking place in the decision.⁵⁰ However, the process of developing AI judicial-assistance systems only involves a small number of judges and judicial staff. When the systems have become functional and been put to use, they can save thousands of judges’ time and efforts. It is a cost-efficient deal.

It is a well-accepted observation that law cannot be simplified as syllogism. For any seemingly correct statement of law, an experienced lawyer can always formulate a seemingly correct counter statement with equally persuasive force. That is why Justice Robert Jackson said that “we are final not because we are infallible; we are infallible because we are final.”⁵¹ And Justice Holmes famously stated: “General propositions cannot decide concrete cases.”⁵² Because of the “open texture”⁵³ of law, any legal system needs to have secondary rules conferring authoritative power of interpretation, succinctly captured by Hobbes’s aphorism: “*Auctoritas non veritas facit legem*” (Authority, not truth, makes law).⁵⁴ In the Chinese smart-courts context, the authority of AI-assisted judicial decision-making comes from various sources; one of them is its scientific outlook. It is presented as a trustworthy approach to reduce arbitrariness and enhance consistency in the application of law. After all, China maintains a human-in-the-loop approach to AI application in courts. AI systems are given the role of assistants; the final say remains with human judges.

4.2 Road-Accident Smart Decision System

One example of an AI judicial-assistant system is the traffic-accidents dispute-resolution system (TADRS) adopted by courts and traffic police in a number of provinces in China. Here I take TADRS in Sichuan province as an example.

In 2017, the high court in Sichuan Province brought judges from three levels of courts in Chengdu, law professors from Sichuan University, and programmers from Galawxy (a specialized law-tech company)⁵⁵ together to form a team to develop TADRS. The final product has the following features: first, it applies information-extraction algorithms to extract key

49. Russell & Norvig, *supra* note 47, pp. 694–5.

50. Martins (2020).

51. *Brown v. Allen*, 344 U.S. 443 (1953).

52. *Lochner v. New York*, 198 U.S. 45 (1905), Justice Holmes dissenting.

53. Hart (2012), p. 124.

54. Hobbes (2014), p. 431.

55. Further information on this company is available on its website at <http://www.galawxy.com> (accessed 10 April 2020).

factual elements from traffic-police records, which include weather data, traffic data, road data, traffic-light and signs data, vehicle data, driver data, accident data, and other relevant data; second, it associates the factorized factual data with key factors in relevant legal rules, including rules regarding the standard of care, traffic signs, driver's qualification, etc. to construct semantic models; then it runs deep-learning algorithms to scan tens of thousands of traffic-police decisions and court judgments to find patterns of how decision-makers attribute legal consequences to each factual–legal factor pair; fourth, it uses automated decision-making algorithms to suggest solutions; finally, these suggestions are either presented to human decision-makers or popped-up to users of online-mediation platforms. This system has been deployed in traffic-police stations, courts, and mediation centres all around the province.⁵⁶

4.3 206 System

As previously mentioned, the 206 System is an AI-based trial-assistance system developed by the ICT company iFlyTek and Shanghai People's High Court. Initially, it was an integrated criminal-cases processing system with functions of automatically examining and connecting the dots in the evidence chain, matching the case facts with similar cases, sorting out the applicable laws and doctrines, and assisting the judges to apply the law methodically to the key factors in facts as revealed by evidence. Therefore, its full name is "Shanghai intelligent case-handling system for assisting judges in criminal cases." Now, it has been expanded to cover certain types of civil- and commercial-law cases. Because iFlyTek is a leading company in NLP, the 206 System applies cutting-edge NLP technology to identify the semantic meaning of legal and evidentiary texts. It also uses mature technologies such as Dual Iterative Pattern Relation Extraction (DIPRE) and bootstrapping to simultaneously extract templates and examples from labelled samples and then train the machine to annotate texts automatically. The result is a fully functioning system deployed in Shanghai courts.

In a courtroom equipped with the 206 System, there are telescreens in front of the judge, the prosecutor, the defendant, or the parties in civil cases, and lawyers. With the progress of the trial, relevant information, such as arrest warrants, witness statements, interrogation records, video clips, etc. will be displayed on the screen automatically, prompted by the voice-recognition function of the system. The system not only displays information; it also analyzes the information automatically. After displaying the evidence, it will give an evaluation on whether the evidence forms a chain meeting the statutory standard of proof.

After experimental use in several courts in Shanghai, the 206 System has grown to have both a police version and a prosecution version. The police and procuratorial versions of the 206 System codify procedural rules and evidentiary standards in algorithms that essentially screen the legality of criminal investigation and prosecutorial practice before the trial. For example, the procuratorial version incorporates thresholds for the arrest and prosecution of 71 types of offences; an arrest decision against the no-arrest recommendation by the machine may require a justification or cause a subsequent accountability check. The different branches have then been connected since December 2018, enabling the complete process of criminal justice in Shanghai to be conducted online, from case filing, entry of

56. Zeng & Wang (2018).

investigation results, approval for arrest, prosecutorial review, prosecution, trial, conviction, sentencing, to commutation and parole.

The 206 System, with multiple functions, has been granted patents and copyrights in China. Its four distinctive functions are as follows. (1) Evidence standards and evidence rules guidance: this function provides the case-handling personnel with standardized, digitalized, and checklist-styled guidelines in evidence collection and fixation, which are easy for them to grasp and follow, so as to prevent the prominent problems in this procedure, such as a lack of uniformly applicable evidence standards among public-security organs, procuratorates, and courts, non-standard case-handling conduct, etc. (2) Evidence review: the 206 System can review, verify, and supervise both the single evidence and the evidence chain of the whole case, and remind the case-handling investigators and officers about the problems in evidence in a timely way, so as to ensure that the factual evidence of the cases under investigation, review, and prosecution can stand the test of law. (3) Interrogation guidance with key factors: with its questioning/interrogating models for different types of cases, the System can provide guidance to police officers during questioning or interrogating. Besides, it can help users to detect contradictions of the confessions in time, so as to guarantee the comprehensiveness, legality, and accuracy of interrogation transcripts. (4) Intelligent court-trial assistance: through the use of AI and other high-tech to assist the court trial, the 206 System can ensure that “the facts of the case are ascertained in court” and “the evidence is determined in court,” so as to truly implement the policy of “making the trials the center of judicial process,” and to protect the litigant’s right of action, as well as the people’s right to know, participate, express, and supervise, etc. One of the leaders in developing the 206 System proudly said: “It can be said that the development and application of this System are in the leading position in the world.”⁵⁷

TADRS in Sichuan and the 206 System in Shanghai are just two examples among numerous specialized smart-courts systems in China. Under the central planning of the SPC, each local court is developing an AI-based trial-assistance system covering one type of case on which it has accumulated more experience (i.e. more data) than other courts. For example, Yunnan High Court developed a system on drug-related cases, Zhejiang High Court developed a system on e-commerce cases, etc. Such systems shall then be copied by courts in other regions. Such a co-ordinated effort of “learning from others’ advantageous points to make up one’s shortages” (取长补短) between different regions is one of the key factors contributing to the success of China’s development. With each local court developing an algorithm covering one particular cause of action, soon China will have a smart-courts system with algorithms covering every type of case.

5. INTERNET COURTS: INNOVATIVE BUT NOT DISRUPTIVE

While scholarly discussions on the application of AI to judicial process have largely focused on whether computers will soon replace human judges, a survey of actual examples of AI in law can show that such a scenario is remote, if not illusory. The Chinese SCP is both transformative and non-disruptive. Law needs to be both stable and adaptive.

57. Cui, *supra* note 23, p. vi.

Technology-enhanced memory can be utilized to improve consistency in the application of law by accurately identifying distinctions and similarities in numerous cases. Deduction and induction can be fused together in algorithms combining the features of deterministic and probabilistic computation. Holmes's famous aphorism "the law of law has never been logic, but experience" can be technically modified to "the life of law is in logic saturated by experience, and in experience tidied up by logic." By developing and implementing smart technologies in courts, formalism has been enhanced in China's formal judicial system. However, China also opens a space for judicial innovation. Internet courts are such examples.

5.1 *Limited Jurisdiction*

According to the procedural rules enacted by the SPC, Internet courts have jurisdiction on seven types of cases: (1) contract disputes related to online shopping, online services, and online small loans; (2) copyright disputes related to the entitlement and infringement of online creative works; (3) tort cases related to online infringement of personality rights; (4) product-liability cases related to online shopping; (5) domain-name disputes; (6) administrative law cases related to Internet governance; and (7) other Internet-related civil and administrative law cases allocated by superior courts.⁵⁸

Obviously, Internet courts in China are different from general-purpose courts. They are established to solve disputes arising from online transactions. More specifically, the laws applied by Internet courts are quite limited, including e-commerce law, competition law, copyright law, tort-liability law, consumer-protection law, and product-liability law. Within their jurisdiction, Internet courts are expected to develop factorized legal doctrines that will become the basis for developing algorithms covering cases arising from online transactions.

5.2 *Developing Doctrines for New Types of Cases*

Internet courts in China are expected to formulate new doctrines to cover new categories of cases emerging in online transactions. For example, Hangzhou Internet Court developed a concept of "professional fighters against counterfeits" (PFAC, 职业打假人) in *Liu Yan v. Qin Qiao and Taobao*.⁵⁹ The plaintiff relied upon provisions in the Food Safety Law (Article 148), which requires sellers of counterfeit milk powder to pay an amount equal to ten times the price of that good to the buyer. She knowingly and deliberately bought counterfeit goods from a number of sellers and claimed compensation on the basis of the law. The e-commerce environment significantly lowers the cost of being a PFAC; for example, they do not need to face the seller frequently and encounter personal embarrassment. Therefore, many PFAC emerged in the e-commerce platforms, such as Taobao and Jingdong. The court adopts a purposive approach to legal interpretation, holding that (1) the relevant legal provisions aim to increase the cost of violation for the sellers and deter illegal conduct, not to give someone an opportunity to make a profit; (2) selling counterfeit goods violates relevant

58. "最高人民法院关于互联网法院审理案件若干问题的规定" [Supreme People's Court Regulations on Matters Regarding Trials in Internet Courts], 3 September 2020, http://www.law-lib.com/law/law_view.asp?id=635910 (accessed 10 April 2020).

59. *Zhejiang 8601, First Instance Civil Law Case no.815* (2017).

laws, and any person discovering such behaviours should report to the responsive government agency, rather than take the opportunity to blackmail the violators; (3) someone who knowingly buys counterfeit products with the purpose of making money is not a “consumer” as defined in the Law on Consumer Protection.

In another case, *Yu Binhua v. Guangzhou Huaduo Network Technology Co., Ltd., Wang Zirong, Harbin Xingrong Culture Media Co., Ltd., and Liu Qiqi* Disputes, Guangzhou Internet Court developed legal doctrines covering another prevalent phenomenon in the Chinese social network, namely tipping for online performance (*dangshang*, 打赏).⁶⁰ In recent years, the webcast industry has developed rapidly and become an emerging form of digital economy; the number of related disputes has also increased. This case clearly defines the legal relationship among the users, the live-broadcast anchors (主播, usually young ladies), and the live-broadcast platform, and specifies the legal nature of “live-broadcast gratuity.” By defining the legal nature of relations and behaviours related to webcasting, this case clarifies the rights and obligations of parties involved, helps to regulate webcast activities, and promotes the healthy development of the live-broadcast industry. Liu Qiqi is a anchorwoman of Harbin Xingrong Culture Media Co., Ltd (“Xingrong”) who performed live broadcasts on the YY live-broadcasting platform operated by Guangzhou Huaduo Network Technology Co., Ltd (“Huaduo”). Liu Qiqi’s live-broadcast room is opened with the YY account of Wang Zikai, the legal representative of Xingyi Company. Between February 2017 and April 2017, Yu Binhua spent a total of ¥59,291.28 (including gifts and fees to assume virtual roles of “Duke” and “Guardian”) in Liu’s live-broadcast room. On 17 March 2017, Yu Binhua was the top gift-giver that day and was set as VP of the room by Liu. On 7 April 2017, Liu cancelled Yu Binhua’s VP permission because Liu Qiqi objected to Yu Binhua’s proposals including transferring money through WeChat or giving gifts to Liu privately. Yu Binhua filed a civil lawsuit before the court, requiring cancellation of the contract regarding offering gifts in the live-broadcast room and claiming against the defendants to jointly return ¥49,291.28. The court holds that the webcast platform provides platform services for users and charges service fees through users’ purchase and use of virtual currency. The two form a legal relationship of an Internet-service contract. Generally, a gift contract is established when a user offers “gratuity” to the streamer, unless there is evidence to prove that the streamer must perform specific and clear contractual obligations before and after accepting the “gratuity.” In this case, the plaintiff Yu Binhua’s act of offering “gratuity” to the defendant Liu Qiqi did not involve any agreement requiring the defendant to fulfil specific obligations, nor did it put forward any consideration of the “gratuity,” and so it should be deemed as a gift rather than a service contract. On 7 January 2019, Guangzhou Internet Court made a civil judgment that rejected all of the plaintiffs’ claims. After the first-instance judgment was pronounced and served, neither the plaintiff nor the defendant filed an appeal, and the judgment has become effective. This case was subsequently published as a “typical case” (典型案例) by the SPC with persuasive effects on Chinese courts deciding similar cases.

60. *Yue 0192, Civil Law Case no.03* (2018). For an insightful cultural analysis on the phenomenon of “dashang,” see Wu (2020).

5.3 Experimenting with New Tools

On the other hand, Internet courts are also expected to innovate on various tools to enhance judicial efficiency and accessibility. The judicial blockchain is such an example. It was first developed by and deployed in the three Internet courts in China. For example, Beijing Internet Court established a permissioned blockchain called Libra Chain (天平链). It brought more than 100 organizations into the chain, making evidence stored on the servers of one of these nodes admissible in courts. The number of pieces of online evidence collected has exceeded 4.72 million, and the record of cross-chain evidence preservation has reached 10 million. Hangzhou Internet Court was the first court in China to admit a piece of evidence stored on a blockchain. In *Huatai v. Daotong*,⁶¹ the plaintiff stored a screen clip showing the defendant's copyrights violation on a blockchain. Its authenticity was admitted by the court. The court for the first time provided an approach for reviewing a piece of electronic evidence stored on a blockchain. Guangzhou Internet Court, joined by more than 50 local institutions including judicial-administration authorities, telecommunications operators, and Internet enterprises, built an intelligent trust ecosystem named “网通法链” (Law Network Chain). Since 30 March 2019, more than 5.45 million pieces of evidence have been preserved therein.

After the experimental adventure of these Internet courts, other courts in China started to build their own blockchain networks. As of 31 October 2019, courts in Beijing, Shanghai, Tianjin, Jilin, Shandong, Shaanxi, Henan, Zhejiang, Guangdong, Hubei, and other provinces had interconnected with a national e-evidence platform underpinned by a blockchain, which is linked to 27 sites including the National Time Service Center, Diversified Dispute Resolution platforms, notary offices, and forensic-science centres. Over 190 million pieces of e-evidence have been preserved on the platform, supporting evidence authentication and examination for future hearings.⁶²

6. CONCLUSION

I have made the following observations in this article. (1) While a number of other countries have moved to dismantle the formal mechanism of dispute resolution by developing online dispute-resolution (ODR) tools and platforms, China is using ICT to improve the formal qualities of law. (2) This has resulted in a trial-centred smart-courts system in China with algorithmic tools to standardize adjudication. (3) China is moving towards an algorithm-empowered case-law system without *stare decisis* but with statistically identified regularities. Over a century ago, Oliver Wendell Holmes, Jr told a group of law students: “For the rational study of the law the black-letter man may be the man of the present, but the man of the future is the man of statistics and the master of economics.”⁶³ Just like any aphorism, it can be true from any angle. But he certainly did not perceive a situation in which black-letter law is enhanced by statistics and logic is enriched by experience, with help from something called “machine learning.” (4) As an example, in the field of criminal law,

61. Zhejiang 0192, First Instance Civil Law Case no.81 (2018).

62. Supreme People's Court (2019), p. 18.

63. Holmes (1897), p. 469.

piloting courts in China have been using AI-enhanced systems to unify evidential standards, sentencing guidelines, and like-cases key elements, while COMPASS in the US and HARM in the UK have moved towards a risk model, abandoning the principle of proportionality between crime and punishment. (5) The use of ICT has enhanced, rather than diminished, hierarchical control in China's judiciary, with judges under tighter scrutiny based on "similar-cases notification and deviation check" software. (6) The three Internet courts in Hangzhou, Beijing, and Guangzhou are real courts with physical buildings and are embedded in China's hierarchy of courts. On the one hand, they are considered as piloting courts, indicating the future of the judiciary in China; on the other hand, they are now largely handling disputes arising from online transactions.

While this article is largely an exercise of descriptive sociology, it is time to sound some cautious notes at the end. First, as technology becomes increasingly "smart," the increasing technologicalization of the law will make it easily replaced by technology. And if both focus on instrumental rationality without value, humanity will be led into an unknowable future; this future is likely to be the abyss of irreversible disaster. The trend for instrumental rationality replacing value rationality had been undoubtedly exposed in the early stage of modernization. However, as a latecomer in the process of modernization, China has adopted an uncritical faith in modernity. This is reflected in the SCPs.

Second, instrumental rationality embodied in AI has a clear reductionist tendency. Although we can use it to improve efficiency and replace part of the judicial work that does not require creativity and value judgment, it cannot be used to make the final decisions concerning human value. On a deeper level, the law should regulate people in a society changed by technology, so that the impact of technology on human society can develop in the direction of goodness and justice. We should not allow our own self-knowledge to be swayed by technology; we should resist dependence on technology like we resist any dominance that causes the loss of subjectivity; if we want to save our humanity and autonomy, we should keep ourselves away from the alienation caused by technological dominance. Therefore, although AI technology can be used to design automatic decision-making systems, such systems can only be used to deal with simple matters that are not controversial in terms of facts and values, such as fines for traffic-law violations, but cannot be used to render automatic decisions in cases involving complicated facts and value choices. AI can only be used to assist human intelligence, allowing human judges to make the final choices and decisions.

Finally, big-data-analysis technology and AI are changing society's governance structure and order-generating mechanism. Whoever masters the data can modify and control human behaviour. From presidential elections to daily shopping, intelligent data analysis and behavioural targeting mechanisms play an increasingly important role, and the manipulators behind them are often no longer governments. The inventors, investors, and advocates of new technologies tend to exaggerate the "liberation" effect brought about by technology, claiming that technologies such as AI and blockchains will make all centres and intermediaries unnecessary, thereby disintegrating the pyramid of human society. The distributed structure makes the orderly interpersonal relationship more and more contractual in a network. Everyone is the centre and it is impossible for anyone to control the entire network. However, the pyramid still exists and the base is still the majority of common people. The top is split into government, capital power, and technology power. These three forces

sometimes merge and sometimes confront each other, but the relationship between them is not affected by the base. Technologists who despise political authority (hackers) will not liberate all mankind; they will only destroy the established legal order. Commercial power bargaining with the government will not “check and balance” public power, but only chase profits. The superstition of *vires in numeris* (strength in numbers) is no better than a belief in violence; both cannot be trusted as tools to achieve social justice. The “Cambridge Analytics” scandal shows that big-data controllers have not only used data analysis to make predictions, but also got the ability to turn certain predictions into self-fulfilling predictions. In maintaining a constitutional structure in which different powers check and balance each other to the benefit of the people, the legal distinction between public and private, political power and commercial power should be re-entrenched. On the one hand, public power should be used to tame computing power and let it serve the public interest. On the other hand, citizens should be given new data rights to offset the unlimited expansion of data manipulation. In China’s SCPs, the close co-operation between government and business caused legitimate concern about whether courts can be unbiased in cases involving those tech companies that participate in the project.

Coming back to the story of Cyber Judge, we can now agree with “Professor Neustadt” that it is not one or the other—man or machines; it is a symbiosis and a way of becoming something different together. However, whether this new relationship is to the benefit of human beings depends on what we choose now.

REFERENCES

- Alexander, Larry, & Emily Sherwin (2008) *Demystifying Legal Reasoning*, Cambridge: Cambridge University Press.
- Baum, Richard (2019) *China’s Four Modernizations: The New Technological Revolution*, London: Taylor & Francis.
- BJGY.chinacourt.gov.cn (2018) “Opinions of the Supreme People’s Court on Further Promoting the Dispersing of Cases and Optimising the Allocation of Judicial Resources,” <http://bjgy.chinacourt.gov.cn/article/detail/2018/04/id/3281212.shtml> (accessed 20 April 2020).
- Cheng, Wen (1999) “司法踏上网络快车：最高人民法院信息化建设侧记 [The Judiciary Has Embarked on Fast Track: A Note on Informatization of the Supreme People’s Court].” 15中国计算机用户 [*China Computer Users*] 57.
- China Judgements Online (2020) <http://wenshu.court.gov.cn> (accessed 21 April 2020).
- Civil Justice Council (2015) “Online Dispute Resolution for Low Value Claims,” <https://www.judiciary.uk/wp-content/uploads/2015/02/Online-Dispute-Resolution-Final-Web-Version1.pdf> (accessed 10 April 2020).
- CNNIC (China Internet Network Information Center) (2019) “第44次中国互联网络发展状况统计报告 (The 44th China Statistical Report on Internet Development),” CNNIC Publications, <http://www.cnnic.net.cn/hlwfzy/hlwzxbg/hlwtjbg/201908/P020190830356787490958.pdf> (accessed 20 April 2020).
- Cohen, Julie E. (2019) *Between Truth and Power: The Legal Construction of Informational Capitalism*, Oxford: Oxford University Press.
- Crawford, Susan (2019) *Fiber: The Coming Tech Revolution and Why America Might Miss It*, Yale: Yale University Press.
- Cui, Yadong (2020) *Artificial Intelligence and Judicial Modernization*, Bern: Springer/Shanghai People’s Publishing House.

- Damaška, Mirjan Radovan (1986) *The Faces of Justice and State Authority: A Comparative Approach to the Legal Process*, Yale: Yale University Press.
- Data.court.gov.cn (2020) <http://data.court.gov.cn/pages/index.html> (accessed 13 June 2020).
- Dworkin, Ronald (1986) *Law's Empire*, Cambridge: Belknap Press of Harvard University Press.
- Faxin.cn (2020) <http://www.faxin.cn> (accessed 13 June 2020).
- Gong, Xiangrui, & Keqiang Li (1983) “法律工作的计算机化 [Computerization of Legal Works].” 3 法学杂志 [*Journal of Legal Scholarship*] 16–20.
- Gruber, Thomas Robert (1993) “A Translation Approach to Portable Ontologies.” 5 *Knowledge Acquisition* 199–220.
- Hart, Herbert Lionel Adolphus (1958) “Positivism and the Separation of Law and Morals.” 71 *Harvard Law Review* 593–629.
- Hart, Herbert Lionel Adolphus (2012) *The Concept of Law*, 3rd edn, Oxford: Oxford University Press.
- HM Treasury (2015) “Spending Review and Autumn Statement (25 November 2015),” <https://www.gov.uk/government/topical-events/autumn-statement-and-spending-review-2015> (accessed 22 April 2020).
- Hobbes, Thomas (2014) *Leviathan*, vol. II, Noel Malcolm, ed., Oxford: Oxford University Press.
- Holmes, Oliver Wendell, Jr (1881) *The Common Law*, Boston: Little, Brown, & Company.
- Holmes, Oliver Wendell, Jr (1897) “The Path of the Law.” 10 *Harvard Law Review* 457–78.
- Hu, Changming (2018) “中国智慧法院建设的成就与展望：以审判管理的信息化建设为视角 [The Achievements and Prospects of Smart Courts Construction in China: From the Perspective of Trial Management Informatization].” 2 中国应用法学 [*China Review of Administration of Justice*] 107–18.
- Jia, Mark (2016) “Chinese Common Law? Guiding Cases and Judicial Reform.” 129 *Harvard Law Review* 2213–316.
- Kellogg, Frederic R. (2018) *Oliver Wendell Holmes Jr. and Legal Logic*, Chicago: The University of Chicago Press.
- Law.tsinghua.edu.cn (2020) “School of Law, Tsinghua University Is Approved of a National Key R&D Judicial Program,” http://www.law.tsinghua.edu.cn/publish/law/3253/2018/20181226085134313882838/20181226085134313882838_.html (accessed 11 June 2020).
- Lee, Kai-Fu (2018) *AI Superpowers: China, Silicon Valley, and the New World Order*, Boston: Houghton Mifflin Harcourt.
- Leith, Philip (1990) *Formalism in AI and Computer Science*, London: E. Horwood.
- Leith, Philip, & Amanda Hoey (1998) *The Computerised Lawyer: A Guide to the Use of Computers in the Legal Profession*, Bern: Springer.
- Luhmann, Niklas (2004) *Law as a Social System*, trans. Klaus A. Ziegert, Oxford: Oxford University Press.
- Martins, João Marques (2020) “A System of Communication Rules for Justifying and Explaining Beliefs about Facts in Civil Trials.” 28 *Artificial Intelligence and Law* 135–50.
- Murphy, Kevin M., Andrei Shleifer, & Robert W. Vishny (1989) “Industrialization and the Big Push.” 97 *Journal of Political Economy* 1003–26.
- People.com.cn (2014) “The Supreme People’s Court Decided to Cancel the Ranking of the National High People’s Courts,” <http://nm.people.com.cn/n/2014/1227/c196699-23361911.html> (accessed 22 April 2020).
- Riley, Frank (1955) “The Cyber and Justice Holmes,” *If: Worlds of Science Fiction*. The Project Gutenberg EBook-No. 59148, <https://www.gutenberg.org/files/59148/59148-h/59148-h.htm> (accessed 11 June 2020).
- Rosenstein-Rodan, Paul N. (1943) “Problems of Industrialisation of Eastern and South-Eastern Europe.” 53 *Economic Journal* 202–11.
- Russell, Stuart, & Peter Norvig (2016) *Artificial Intelligence: A Modern Approach*, Harlow: Pearson Education Limited.
- Scu.edu.cn (2019) “The National Key R&D Program ‘Key Technology and Equipment to Support High Quality and Efficient Adjudication’ Was Launched and the Demonstration Meeting of Its

- Implementation Plan Held at Sichuan University,” <http://www.scu.edu.cn/info/1207/8354.htm> (accessed 11 June 2020).
- Seu.edu.cn (2019) “The National Key R&D Program ‘Integrated Technology and Equipment to Enhance Accessibility to Justice in the Whole Process of Litigation’ Was Launched and the Demonstration Meeting of Its Implementation Plan Held at Southeast University,” <https://www.seu.edu.cn/2019/0102/c17406a257060/page.htm> (accessed 11 June 2020).
- Simon, Herbert A. (1997) *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organizations*, 4th edn, New York: The Free Press.
- Splcgk.court.gov.cn (2020) <https://splcgk.court.gov.cn/gzfwwww/> (accessed 13 June 2020).
- Supreme People’s Court (2019) 中国法院的互联网司法 (*Chinese Courts and Internet Judiciary: White Paper*), 人民法院出版社 [Beijing: People’s Court Press].
- Susskind, Richard (1987) *Expert Systems in Law: A Jurisprudential Inquiry*, Oxford: Oxford University Press.
- Susskind, Richard (2019) *Online Courts and the Future of Justice*, Oxford: Oxford University Press.
- Tingshen.court.gov.cn (2020) <http://tingshen.court.gov.cn/live> (accessed 13 June 2020).
- Weber, Max (1978) *Economy and Society: An Outline of Interpretive Sociology*, Guenther Roth and Claus Wittich, eds., Berkeley & London: University of California Press.
- Wenshu.court.gov.cn (2020) <http://wenshu.court.gov.cn> (accessed 13 June 2020).
- Wu, Guanjun (2020) “The Rivalry of Spectacle: A Debordian-Lacanian Analysis of Contemporary Chinese Culture.” 46 *Critical Inquiry* 627–45.
- Xu, Alison (2017) “Chinese Judicial Justice on the Cloud.” 26 *Information and Communications Technology Law* 59–71.
- Zeng, Xueliang, & Zhu Wang (2018) “道路交通纠纷要素式审判探索——从四川高院的改革实践出发 [Explorations on Factorized Trial in Road Traffic Disputes: Learning from the Experience of Sichuan High Court].” 2 *中国应用法学 [China Review of Administration of Justice]* 97–106.
- Zheng, Tianxiang (1986) “最高人民法院工作报告——一九八六年四月八日在六届全国人大四次会议上 [The Report of Supreme People’s Court to the 6th National People’s Congress on April 8, 1986],” 2 *中华人民共和国最高人民法院公报 [Gazette of the Supreme People’s Court]* 3–13.
- Zhou, Qiang (2018) “最高人民法院于人民法院深化司法改革情况的报告 [Supreme People’s Court Report on Progress of Judicial Reform in People’s Courts],” 人民法院报 [*People’s Courts Daily*], 2 November.
- Zou, Bihua (2011) “要件审判九步法及其基本价值 [Nine Steps in Key Factors Trial and Their Basic Values].” 3 *人民司法 [People’s Justice]* 4–7.
- Zxgk.court.gov.cn (2020) <http://zxgk.court.gov.cn> (accessed 13 June 2020).