Towards smarter and fairer justice? A review of the Chinese scholarship on building smart courts and automating justice

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Abstract

This article reviews how Chinese scholars debate the policy of building smart courts in the context of judicial reform. This policy entails the automation and digitisation of judicial processes. It is part of broader judicial reforms that aim to create a more accurate and consistent judiciary. The article identifies four reform concepts that guide the debate: efficiency, consistency, transparency and supervision, and judicial fairness. This review is a meta-synthesis, using practices of narrative and systematic literature reviews, focusing on evaluating and interpreting the Chinese scholarship and reform concepts. It reviews how Chinese scholars discuss the implications of judicial automation and digitisation. Additionally, it analyses the normative concepts behind the reform goals within China's political-legal context. The analysis finds that the generally positive evaluation in the debate can be explained by an instrumentalist understanding of the reform concepts and the political purpose of courts in the Chinese political-legal context.

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Introduction

For the past two decades, Chinese courts have integrated information technology (IT) in the judicial process, officially called judicial informatisation (司法信息化, *sifa xinxihua*) (Liu and Wu, 2021). This IT is increasingly supported by big-data analytics and learning algorithms (Xu, 2017a). New judicial reforms, launched in 2014, gave judicial informatisation a prominent role in the prerequisites to achieving reform goals. Since then, China's judiciary has accelerated the mass digitisation of its procedures and archives of court judgements (Ahl and Sprick, 2018). It has also introduced live broadcasting and online video depositories of trial hearings (Fan and Lee, 2019).

These reforms constitute the foundation for what is officially called the policy of building smart courts (建设智慧法院, *jianshe zhihui fayuan*). It entails creating a judicial decision-making process, supported by algorithms and big data analytics, conducted in an online judicial ecosystem where most tasks are automated, and judges are aided by technology to make more accurate, consistent, and transparent decisions.

Judicial automation and digitisation are a worldwide phenomenon (e.g. Coglianese and Dor, 2020; Reichman et al., 2020). However, few countries are as advanced as China. Its experience, and the implications of these developments for many issues such as fairness, consistency, and protection of procedural rights, might be insightful for other countries. While English literature on law and technology is widely referenced in Chinese scholarship (e.g. Hildebrandt, 2018; Simmons, 2018; Sourdin, 2018), the Chinese language literature is jarringly absent from the global discussion.

Recent English language publications have focused on digitising court decisions (Ahl et al., 2019; Liebman et al., 2019). Only one directly discusses pilot projects related to building smart courts (Xu, 2017a). Recently, Peng and Xiang (2020) and Zheng (2020) published a descriptive account, and Chen and Li (2020) conducted the first empirical survey on public attitudes towards smart courts. However, none critically review the debate taking place in the Chinese scholarship or the normative concepts guiding this debate.

Chinese academic debates play an essential role in Chinese policy formulation. They provide an important feedback loop for policy-makers to evaluate progress and adjust course. It is equally one of the few venues where open debate, including critical opinions, is possible. Party or government officials also participate in this policy debate through academic publications (Zeng, 2014). Therefore, reviewing how academics evaluate a reform policy is an integral part of understanding Chinese policy-making and reform (Snape, 2019).

Additionally, it is imperative to review the normative concepts handled by Chinese scholars. Only then may we gain a better understanding and appreciation of the Chinese scholarship. Therefore, the main contribution of this review is that it introduces the Chinese academic debate on a specific policy and the normative concepts used to evaluate it. This review may help other disciplines, such as socio-legal studies and law and technology studies, that are interested in how normative concepts regarding judicial fairness and consistency of adjudication influence the debate on automation and digitisation of justice.

This review asks: "How do Chinese scholars evaluate smart courts in the context of the 2014 judicial reform agenda?" This article aims to (1) reveal attitudes and key themes that recur in the evaluation of the smart court system and, more broadly, automation and digitisation of the Chinese judiciary; and (2) critically analyse the normative concepts behind the reform goals within the context of China's political-legal culture.

In what follows, this article contextualises the policy of building smart courts within judicial reform and identifies four key reform concepts. What has become clear from ensuing directives and authoritative opinions is that technology is considered a crucial tool to achieve reform objectives. Moreover, how these reform concepts are understood also influences the evaluation of the reform. The next section explains the methodology. The subsequent section reviews how the literature discusses smart courts, using the selected key reform concepts to guide the review. The conclusion discusses the implications for broader judicial reform and justice in China.

An Evaluative Framework of Smart Courts

The term smart court implies a homogenous group of courts that can be considered "smart." On the contrary, since the circulation of the Supreme People's Court (SPC) "Opinion on Speeding Up the Construction of Smart Courts" (Supreme People's Court, 2017, hereinafter "2017 SPC Opinion"), many different courts across China have launched initiatives that fall under "building smart courts," despite being significantly different. Smart courts are not a separate circuit of courts. Instead, the term refers to different initiatives to automate and digitise the judicial process. Therefore, what the term smart court entails is incredibly diverse and fragmented (Stern et al., 2021).

Despite the widespread association of smart with an intelligent and autonomous agent (often called robots), with "smart," this review refers to the use of software programmes with learning algorithms that are capable of pattern recognition, meaning that these programmes get better at their task with experience (Hildebrandt, 2015: 22–36). Depending on which task at which stage in the judicial process, different programmes are used. This review calls the entirety of these programmes smart systems, where a set of different programmes execute their algorithm and interact with each other to achieve their own goals. The smart systems, internal to courts, can be externally connected to not only other courts or judicial organs but also private technology companies and law firms via cross-court digital platforms (Guo, 2019).

Therefore, this article opts for a broad definition and defines smart courts as legal courts where the majority of or all stages of the judicial process take place in an (online) digital environment, where some, but not necessarily all, tasks are automated with programmes that may or may not be using learning algorithms (smart systems). Central to this (partly automated) digital judicial process of smart courts is the interaction between human judges and the technology supporting them in their work.

The Judicial Reform Agenda

The restoration of public confidence in and authority of the Chinese legal and gover-nance system is one of the main ambitions of Xi Jinping (Biddulph et al., 2017). China's courts were suffering a crisis of public confidence caused by Hu Jintao's policy that prioritised mediation over formal law and court adjudication (He, 2007; Minzner, 2011).

After the fourth plenum in 2014, the Central Committee published its reform agenda with The Decision Concerning Some Major Questions Regarding Comprehensively Moving Governing the Country According to the Law Forward (Communist Party of China, 2014). The decision recognised that the judiciary had to "improve the judicial administration system and the operating mechanism of judicial power, standardise judi-cial conduct, strengthen supervision of judicial activities, and strive to make the people feel fairness and justice in every case." This indicated an orientation of judicial reform towards better and stricter procedures.

Other authoritative documents, such as the SPC Opinion on the Development of Digital Archives, further guided court digitisation (Supreme People's Court, 2016), lay-ing the fundamentals for smart courts. More recent documents also highlight the impor-tance of making full use of modern technology to establish trial case databases, allowing smart systems to push similar cases during trial work with more efficiency and precision (Supreme People's Court, 2020a). They call for smart courts to provide more technolog-ical support for uniform legal application standards and improve the "similar case-push" functions of smart systems, to provide better decision-making support for judges (Supreme People's Court, 2020b). However, the true acceleration of judicial informati-sation came after the publication of the 2017 SPC Opinion, which clarified work goals and overall requirements.

Smart Courts in the Judicial Reform Agenda

The 2017 SPC Opinion reveals how judicial automation and digitisation are envisioned as a vehicle through which to achieve the judicial reform goals aimed at improving effi-ciency, consistency, transparency and supervision, and judicial fairness.

Efficiency.   Efficiency is the relation between input and output: in this case, how much funding, judges, hardware, and so on, are needed to process and decide a given number of cases. Processing more cases with the same number of judges or the same amount of funding would increase efficiency (Reiling, 2010).

In the discussion of efficiency, we need to ask: "efficient at what?" While the 2017 SPC Opinion clearly states that informatisation is supposed to make courts more effi-cient at providing judicial services (Supreme People's Court, 2017: section III.9, IV.12, V.14), one also needs to consider courts in the broader governance and political-legal system.

Improving the efficiency of courts is one of the cornerstones of the current judicial reform agenda (Biddulph, 2017). The issue has primarily been addressed in a purely quantitative manner by simplifying procedures, reducing time limits, and personnel

reforms (Biddulph et al., 2017). This is supposed to help improve the governance capacity of courts.

Courts in the People's Republic of China (PRC) do not fulfil the same role as they do in the liberal rule of law systems (Clarke, 2003). Courts are one of many governance institutions with the power to resolve disputes. Their power to check and balance other state organs is minimal (Liebman, 2007). When officials discuss how to make courts more efficient, the understanding is that they also need to be more efficient at fulfilling their political tasks. These are ensuring proper implementation of central party-state policies (Trevaskes et al., 2014b; Trevaskes, 2017), maintaining social stability, and ensuring party survival (Nesossi and Trevaskes, 2017). Therefore, this article expands the concept of efficiency so that it also entails how automation and digitisation enhance the role of courts as agents of the central party-state.

Consistency. Consistency refers to the uniform application of law and the degree to which similar cases have the same substantive outcome (同案同判, *tong'an tongpan*). Additionally, it refers to procedural consistency, namely the extent to which judicial officers follow procedural requirements. Consistency has been a long-time weak spot of the Chinese judiciary due to lack of expertise, relative vagueness of laws, and vested interests (Gong, 2004; Li, 2012; Wang, 2013).

While consistency was generally not regarded as necessary in the Chinese judiciary (Ng and He, 2017), it has become an essential hallmark of the current judicial reform agenda (He, 2012, 2017). By digitising the entire judicial process and the automation of tasks, smart courts are intended to improve both substantive and procedural consistency.

The 2017 SPC Opinion calls for courts to develop programmes that can trace and record all steps of the judicial process so that both live and post-facto supervision is possible (Supreme People's Court, 2017: section II.6 and III.7). Courts are to develop programmes for evidence treatment, allowing for the tracing of production, cross-examination, and authentication, enabling live and post-facto inspection of every step. These programmes are meant to standardise the way evidence is handled (Supreme People's Court, 2017: section III.10).

Therefore, this concept should be seen from an instrumentalist perspective. Due process or procedural compliance is only valuable insofar it facilitates the fulfilment of courts' political tasks (Guo, 2014; Nesossi and Trevaskes, 2017).

Transparency and Supervision. Transparency is traditionally seen as a primary vehicle towards procedural justice and helps increase social acceptance of judgements. If litigating parties understand the judicial process and how judges make decisions, they will trust and respect the outcome (Grimmelikhuijsen and Klijn, 2015; Tyler, 2006).

Automation and digitisation are supposed to help with court management by providing more detailed insights into its operations (Supreme People's Court, 2017: section I.2 and II.6). Courts are also supposed to disclose as much information as possible via online platforms. Moreover, all case-related businesses' online and digital handling should

enable a fully transparent judicial process by allowing litigants to have easier access to information relating to their case (Supreme People's Court, 2017: section IV.13). This is framed as promoting courts' "direct accountability to the people" (Supreme People's Court, 2017: section I.1, I.2, III.10, and IV).

Additionally, the 2017 SPC Opinion clarifies that it envisions technology as a tool to improve internal supervision to better monitor and restrict the exercise of judicial power. This should, in turn, induce a more uniform application of law and ensure more substantive and procedural consistency (Supreme People's Court, 2017: section V.16). The entire judicial process of production, cross-examination, and authentication of evidence should be made traceable and transparent, enabling the better monitoring of court work by front-line judges (Supreme People's Court, 2017: section III.10).

Therefore, transparency goals are intended not only to increase public credibility but also to regain central control over local courts. This tension in central–local governance has been a prevalent problem in all aspects of governance in China (Fewsmith and Gao, 2014), and the relationship between the SPC and local courts is no exception.

Judicial Fairness.   The overarching goal connected to all previously mentioned reform goals is the improvement of judicial fairness. Smart courts promote the modernisation of the trial system and governance system and are supposed to make people feel fairness and justice in every judicial case (Supreme People's Court, 2017: preamble).

Substantive and procedural justice, as well as fairness, are highly contextual, and even more so than the previous three concepts. To properly understand what is meant by judicial fairness, both in the Opinion and in the Chinese scholarship, we need to discuss this within its political-legal context and how the party-state uses them for higher political purposes. Fairness and justice are encapsulated in the concept of "judicial justice" (司法公正, *sifa gongzheng*). In Chinese legal scholarship and political-legal culture, it refers to procedural justice as part of the overall aim of facilitating and obtaining a fair substantive outcome. Therefore, this concept entails both substantive and procedural justice, with a focus on the former. In other words, procedural requirements are primarily structured to make substantive law more receptive to central party-state policies (Nesossi and Trevaskes, 2017).

The new focus on due process is remarkable in a legal system that has long prioritised substantive outcomes instead of due process compliance (Sapio et al., 2017; Seppänen, 2017). However, genuine procedural justice would hinder the political tasks of Chinese courts, which requires a certain degree of judicial discretion (Clarke, 2020; Trevaskes et al., 2014a). Therefore, there is an inherent contradiction between the technology-imposed restriction and standardisation, on the one hand, and its political tasks, on the other. Especially for local courts, the increased focus on procedural adherence is in tension with their primary task of resolving local conflicts, which requires judicial discretion (Ng and He, 2017). Nonetheless, the Opinion calls to reduce this tension between the two by promoting the organic unification of substantive and procedural justice (Supreme People's Court, 2017: section III.7). "Organically unifying" (有机统一, *youji tongyi*) is an often-used policy-term that refers to promoting a particular way of thinking

Table 1. Retrieval Results and Included Publications.

Keywords	Filters	Results	Included
人工智能 AND 法院 (AI AND courts)	2012–2019; Politics/Military Affairs/ Law; Core Journals; CSSCI	54	27
智慧法院 (Smart courts)	2012–2019; Politics/Military Affairs/ Law; Core Journals; CSSCI	38	14
人工智能办案系统 (AI judicial assistant systems)	2012–2019; Politics/Military Affairs/ Law; Core Journals; CSSCI	3	3
人工智能 AND智慧法院 AND 大数据 (AI AND Smart Courts AND big data)	2012–2019; Politics/Military Affairs/ Law; Core Journals; CSSCI	11	11

that binds together "what might otherwise be read as dissonant concepts or statements" (Lin and Trevaskes, 2019: 51).

In sum, the meaning of these concepts in the Chinese political-legal context differs from their meaning in a liberal rule of law context. It is essential to recognise the political imperatives of courts and law in the PRC and how this encourages an instrumentalist understanding of what these concepts mean.

Data and Methods

Retrieval Protocol

The review question is: "How does the Chinese legal scholarship evaluate smart courts against the judicial reform agenda?" Based on this question, specific keyword search strings were created (Table 1) to conduct the retrieval. The articles were retrieved from the China National Knowledge Infrastructure (CNKI) database. Additionally, filters were used to make the number of hits manageable. To illustrate the difference this made, when conducting the first keyword search using only the publication year as a filter, it resulted in 141 hits. After using the stricter filtering, only 54 hits remained.

The broad period was chosen to capture as much relevant discussion on smart courts and judicial informatisation as possible. However, the filters excluded all hits before 2016. The closeness to the launch of the policy in 2017 might explain this. Given the clear demarcation of the research topic as a domestic policy of technological innovation within the judiciary, I further excluded papers on smart technology unrelated to the judiciary, on tribunals as part of the Belt and Road Initiative (BRI), or that researched actual judicial practice based on big data. These articles were not directly related to the discussion of the smart court policy. To maintain a certain degree of academic quality, I also excluded papers with no citations and fewer than six pages. Although this last criterion might be arbitrary, it was to maintain a manageable number of articles. In total, 55

articles were retrieved through the formal collection. The retrieval was conducted in November 2019 and reflected the literature up until that point.

Most of the retrieved articles were published in 2018 and 2019 (85 per cent of the selection). The short time frame and closeness to the launch of the policy might explain the relatively small amount of empirical data on smart courts in the literature: only six articles conducted a case study, survey, or visits to courts. Another major limitation of this review is that it does not include the literature of 2020 or 2021. A literature review of the period 2020–2022 might help contrast possible changes in the debate.

While 55 articles were read, not all of them were thoroughly analysed or cited. In hindsight, some articles should have been excluded using stricter exclusion criteria. Saturation was achieved before the completion of the analysis when no new themes emerged. Once the key themes were selected based on triangulation, data saturation was also achieved when attitudes or arguments were repeated multiple times across different scholars, diminishing the added value of continuing the analysis (Saunders et al., 2018). A complete list of references is included in Online Appendix II.

A total of 64 scholars were part of the selection. The overwhelming majority of the authors (80 per cent) were affiliated with a university as a professor, researcher, or PhD candidate. Only 17 per cent was affiliated with a judicial organ as a judge, researcher, or officer. The remaining 3 per cent was affiliated with a party school. In the selection, authors are mainly experts in criminal (procedure) law and procedural law.

References to western literature on law and technology (e.g. Isaac, 2018; Simmons, 2018; Sourdin, 2018) were prevalent in the selection: 62 per cent of the reviewed articles had at least one reference to English-language literature. The Hangzhou Internet Court and the Shanghai 206 System were the most cited examples. They were also covered in detail as a case study (Ge, 2019; Yu and Li, 2018). Their frequency is self-explanatory because, at the time, these two courts were the most advanced in their pilot projects. Online Appendix III provides an overview of selected metadata.

In this sense, the review does not tell us anything about the empirical reality of smart courts. It is possible that filtering has excluded voices from government and judicial officials as well as empirical research. However, during the writing of this article, multiple follow-up searches, even when using looser sets of criteria and filters, did not indicate that significant literature was missed.

Analysis

I have opted for a mixture of practices from narrative and systematic literature review methods. The purpose of a narrative review is to enrich discourse by generating understanding rather than accumulating knowledge. Therefore, reviewing the literature is a more uncertain process of discovery and may reduce the comprehensiveness of the review (Geertz, 1973). However, I supplemented this with systematic review practices, such as using an explicit review question, specifying the literature search procedures, and being explicit about the inclusion and exclusion criteria to enhance transparency and reproducibility (Hagen-Zanker and Mallett, 2013).

In the first step, the literature was inductively coded. The themes discovered in the literature were triangulated with key reform concepts that emerged from official policy documents. These themes were chosen because they were (1) the most critical themes according to official documents, and (2) discussions relating to these themes were more numerous in the literature than others, such as equality of arms or access to justice.

Based on this, relevant paragraphs and sentences were organised according to the theme. This process was all done manually. In a second step, basic coding was used based on the reform concepts (see Online Appendix I). All articles were then analysed systematically using NVivo, a qualitative data analysis software.

The Chinese Debate on Smart Courts

Efficiency

Many scholars consider efficiency to be the main advantage of automation and digitisation. It is significantly easier to achieve when it comes to simple processes. There is arguably a consensus about the positive contributions of smart courts to judicial efficiency. Smart courts are said to increase trial efficiency, expedite litigation, reducing costs, expedite information retrieval, and allow quicker closing of cases (Feng and Hu, 2018; Gao, 2019b; Guo, 2017; Pan, 2017; Qian, 2018; Xu et al., 2019; Zhou, 2018). Given the fact that one of the most significant issues with the Chinese judiciary was the long process and delays due to understaffed courts and overworked judicial staff, it is understandable that increasing efficiency might also be framed as a way to re-establish judicial credibility (e.g. Xu et al., 2019: 88). The appropriateness and usefulness of automation and digitisation to courts' efficiency are not questioned. Scholars seem to frame courts mainly as administrative governance institutions rather than institutions concerned with protecting citizens' rights.

Nevertheless, this lens is also flawed because it leaves out many important considerations. For example, Wang (2019) notes that while basic digitisation of the judicial process may improve efficiency, the application of big-data analytics and algorithmic technology risks diminishing inherent attributes of the judiciary. He argues that judicial reform risks being reduced to a technical problem, where every issue is perceived to be solvable with technological innovation rather than institutional reform. It risks blindsiding observers in their evaluation of judicial automation and digitisation. By equivalating efficiency with "a more just and fairer judiciary" (Pan, 2017), reform goals are implicitly achieved despite not being explicitly addressed. Judicial informatisation is not a "magic cure" that will suddenly resolve all issues in the judiciary.

The scholarship asks few questions about the negative influence of efficiency goals on other principles. While efficiency is equated with more fairness, a faster process might not necessarily mean a fairer trial. However, there seems to be little concern about this. It may be explained by how the judiciary is primarily seen as a governance institution that exists to aid the central party-state with implementing its central policies, rather than a protector of individual rights against state incursion (Clarke, 2020; Nesossi and Trevaskes, 2017).

Consistency

On this issue, the scholarship is more divided, and different considerations play out in the debate. On the one hand, automation and digitisation are suitable for standardising the judicial process and making outcomes more consistent (Gao, 2018; Wang, 2019). Consistent outcomes and standardised adjudication are seen as another prerequisite for judicial fairness because it improves predictability and uniformity (Feng and Hu, 2018; Qian, 2018). On the other hand, the potential of mechanically enforcing consistent adjudication risks limiting judicial discretion, "the essence of justice" (Feng and Hu, 2018; Huang, 2017; Wu, 2018). Liu (2019) argues that courts should not be recklessly pursuing uniform adjudication just for the sake of it. The adjudicator can consider smart systems' advice but should not blindly follow it.

This second group of scholars argues that it can potentially jeopardise the primary function of courts to ensure substantively fair outcomes, which requires consideration of the unique circumstances of a case. Smart systems are not equipped to maintain the balance between consistency and unique circumstances of a case (Huang, 2017; Pan, 2018; Sun, 2019).

Others argue that the automation of tasks upsets the power balance in courts. Wang (2019) argues that an automated and digitised judicial process presents a new form of knowledge production. Technical knowledge becomes more important than legal knowledge. His point is that this would lead to new power dynamics in the judiciary, where judges who are more "tech-savvy" might become better at adjudicating, regardless of their legal knowledge. Ultimately, these "tech-savvy" judges might hold more authority than those who are not.

For Sun (2019) and Ji (2018), this situation could lead to dramatic consequences: the subversion of judicial discretion by technology. They argue that by trying to achieve consistency through technology, the judicial system risks surrendering its power, shifting the nexus of decision-making power to the algorithms behind the smart systems. Judicial informatisation could lead to a fully automated judicial process with little to no human agency. Judges would become mere administrators with very little to no discretion.

These scholars fear that exaggerated uniformity and aversion for discretion will endanger judicial pluralism. Previous campaign-style judicial reforms prove that this fear is not unfounded: the balance often tilts too far into the direction of uniformity (Biddulph et al., 2017; Trevaskes, 2007). This "dystopian technocracy" hypothesis, mainly focused on the replacement dilemma, is a recurring argument in the literature.

Other authors are dismissive of the idea because smart systems are never meant to replace human judges but rather assist and support them. Adjudication is a value judgement over human affairs. It, by default, should be presided over by other humans because a computer does not have values (Jiang, 2019; Luo, 2018; Tu and Yu, 2018; Wu and Chen, 2019; Xu, 2017b). However, by dismissing the potential of judges being replaced, they fail to recognise that technology does not need to fully replace humans to reduce human agency or perpetuate human biases.

The above illustrates Qian, 2018's (2018) point that judicial informatisation is useless if other reforms do not accompany it. Smart systems can both undermine or support judicial reform goals, depending on what choices are made during the design and application of the technology. He argues that observers, whether they are scholars or public officials, need to assess court informatisation within the context of the judicial reform goals. Observers need to ask: "is this specific (smart) program that automates or digitises certain tasks helping us to achieve stated policy goals?"

For example, Wu (2018) argues that the questions that should be asked are "How much discretion should be granted to judges under a given legal system?" and "Do we want to regulate judicial discretion through computers?." Here, he is also hinting at the tension between central and local courts. Depending on the answer to these questions, the so-called adverse effects of automation might become desired outcomes. To Wu (2018) himself, the way to achieve more consistency is to restrict judges' discretion. By extension, the primary way to restrict judges' discretion is through automation.

Interestingly enough, Qian (2018) disagrees with this kind of restriction, arguing that it would hamper the role of the judiciary in interpreting the law and reduce the judiciary to another "law enforcement" agency. Technology-induced formalism and standardisation can reduce the interpretative and innovative role that the Chinese judiciary plays in Chinese society (Li, 2018). The question is then, what outcome is desired by the reform agenda? Based on the larger policy context laid out earlier, a reduction of judicial discretion is likely the desired outcome.

Therefore, while most scholars assess that technology will make the Chinese administration of justice more consistent both in procedure and substance, they disagree on its implications for justice in China and its desirability.

Transparency and Supervision

Judicial transparency is seen as the primary vehicle to restore credibility and people's sense of justice. The transparency of a smart judiciary goes further than online disclosure. Instead, smart courts also guarantee full procedural transparency, where every single step is disclosed and accessible to the public. Many argue this makes adequate public supervision possible and improve credibility vis-à-vis the public (Guo, 2017; Lu, 2019; Xu, 2017b; Yu and Li, 2018). The first empirical survey on Chinese public attitudes towards judicial digitisation supports the validity of this argument (Chen and Li, 2020).

Feng and Hu (2018) and Liu (2019) argue that this kind of transparency is the best guarantee for procedural fairness. If the due process happens in a completely transparent manner, it will also encourage procedural compliance by the court. Full-process transparency will lead to increased procedural standardisation. Ultimately, courts' legitimacy and acceptance of outcomes will increase. They envision an interactive dynamic between an open and transparent judiciary and a scrutinising public. Transparency becomes a way to supervise the court and hold it accountable. This would also require a standardisation of the judicial process through a clear procedural framework.

In contrast, some scholars argue that smart systems do not improve and potentially even undermine transparency because the algorithms driving these systems are

inherently opaque. They refer to the "black box dilemma," meaning that the exact functioning of learning algorithms that drive the programmes will change over time and experience, to the extent that its original developers do not know how the algorithm exactly functions (Huang, 2017; Sun, 2019; Wang, 2019).

Zuo (2018) argues that simple disclosure of decisions is not enough to convince the public. The black box characteristic of algorithms is in natural conflict with the transparency required to gain acceptance of judicial decisions. Also, he argues that the procedural obsession induced by transparency will hinder judges' task to focus on substantive outcomes. Likewise, Feng and Hu (2018) point out the contradiction between the openness and standardisation of front-end elements and the "mystification" of back-end behaviour. Technology cannot overcome the inherent opaque decision-making process in the judiciary, which is also influenced by other elements.

Additionally, in an analysis of the strategic co-operation between courts and private companies, Li and Wang (2019) worry that ultimately the smart systems' private developers will determine outcomes because of their technology's dominant presence in the judicial process. Automation of judicial tasks requires the codification of procedures and substantive laws and regulations. When these codes are not part of the public domain, rather the intellectual property of private enterprises, it is difficult to argue that automation will make the judicial process more transparent.

Like with consistency, these scholars have difficulties reconciling technical and legal expertise. There is an inherent contradiction in the transparency objective of judicial informatisation and the opaqueness of algorithms (Chen and Sun, 2019; Tu and Yu, 2018). Technical staff does not have legal expertise, and judicial staff might not have the technical expertise to understand the system's output (Wu and Chen, 2019).

While their standpoints vary, scholars discuss transparency through the lens of external explainability and accountability. Their primary concern is the extent to which smart courts will improve judicial transparency *to the public*. In a sense, this is also the primary justification for these reform goals: to restore public trust in the judiciary (Ahl and Sprick, 2018).

However, implicit in the official reform agenda is the need for more monitoring and central control over the judiciary. Smart systems are also meant to monitor judicial work for internal and hierarchical supervision. Therefore, smart courts also play an essential role in improving *internal* transparency and supervision, which is mainly meant to increase judicial accountability and reduce misconduct (Feng and Hu, 2018)

Qian (2018) is one of the few to recognise that consistency and standardisation have the implicit goal to tighten supervision over judges. He argues that smart systems are the perfect tools to re-establish supervisory control over judges. In this, he acknowledges the political element of judicial informatisation.

That transparency and supervision are inherently linked to accountability is pointed out by Gao (2019a), who discusses the implications of automation for the phenomenon of judicial shirking. He argues this will allow the judiciary to hold judges better accountable for the decisions they made and reduce shirking because, at every step of the judicial process, it will be clear who took what decision.

On the contrary, Ji (2018) argues that, while these systems may make the entire judicial process traceable, judges can still divert responsibility by blaming or deferring to the wisdom of the algorithm. Long (2019) and Cheng (2018) agree, arguing that the increased supervisory capacity of smart systems matters little when judges rely on AI to make their decisions, referring to the phenomenon of algorithmic complacency. These authors see the learning algorithms as a second authority external to the judge, making allocating responsibility more complex.

In sum, the scholarship lauds judicial informatisation for improving external transparency and public supervision and accountability. This attitude neglects its internal supervisory purpose, despite internal supervision being an important tool in guiding the work of lower-ranked courts (Finder, 2019aFinder, 2019b). Smart courts will only increase the SPC and provincial high courts' ability to supervise and guide the work of lower-ranked courts better. This is bound to have a normative effect on Chinese jurisprudence, yet is barely mentioned in the scholarship, with a few exceptions.

This discussion also shows how even within the Chinese scholarship, there are different ways smart courts are being assessed. Those who are more positive and enthusiastic might be assessing smart courts through a lens that is closer to that of the Chinese party-state, whereas other scholars have a different understanding of the concepts.

Judicial Fairness

While smart systems' contribution to substantive justice is argued to be limited (Huang, 2017; Pan, 2018; Sun, 2019; Wang, 2019), they are capable of improving procedural justice and reduce "injustice" (Guo, 2017; Liu and Chen, 2019; Qian, 2018; Xu, 2017b; Zhou, 2018). Nonetheless, few scholars attempt to define what "judicial justice" means, and it remains an ambiguous concept throughout the literature.

Nonetheless, Feng and Hu (2018)'s definition offers some clarity. They argue that to achieve judicial justice, the judicial process needs to follow proper legal procedures, and the substantive outcome needs to reflect the spirit of fairness. Therefore, judicial justice is a combination of procedural and substantive justice. They hold that judicial informatisation can only assist in achieving judicial justice in the context of current judicial reforms. In essence, they come back to a previously discussed argument, namely that the technology of smart courts can only be a conduit through which to achieve reform goals of restoring judicial fairness. The implications of judicial informatisation depend on the people that make up the judiciary.

Most scholars prefer to maintain a procedural interpretation of judicial justice when discussing smart courts. They argue that automation and digitisation will make procedures more visible and tangible for court users. This will improve peoples' sense of fairness and increase the credibility of the judiciary (Xu, 2017b; Zhou, 2018). Other scholars argue that judicial informatisation will bring improvements in efficiency, consistency, standardisation, and, by extension, judicial justice (Gao, 2018; Guo, 2017; Liu and Chen, 2019). Pan (2017: 102) goes as far as to say that "judicial efficiency is judicial justice in a sense."

These scholars seem to envision technology as a facilitator of procedural reforms aimed at providing better judicial services but not necessarily aimed at the protection of procedural rights. The instrumentalist understanding of judicial justice, namely that procedures only exist to facilitate achieving the most desirable substantive outcome (Nesossi and Trevaskes, 2017), might explain the largely positive assessment of smart courts' influence on this concept.

In a more nuanced assessment, Yuan and Xu (2018) label procedural justice as the entry point to achieve judicial justice. It requires the openness of the judicial process, clear and rational procedures, and participation of the parties. They argue that automation and digitisation help reduce the judicial process's arbitrariness, thus making it more rational. They simultaneously point out that this also limits judges' discretion. They argue that judicial justice is based on careful consideration of a case's complex and unique circumstances. However, the use of technology enforces a certain degree of rigidity in the judicial process that reduces the subjectivity required to solve an individual case.

Yuan and Xu (2018) point out the contradiction between technological rigidity and human flexibility. In the search for more consistency, accuracy, and efficiency, the judiciary risks diminishing human agency during decision-making. This could have negative consequences for peoples' sense of fairness. A few scholars repeat and expand this argument (Feng and Hu, 2018; Jiang, 2019; Liu, 2019; Sun, 2019).

Long (2019) also warns that the increased use of smart systems will lead to overreliance, affecting the autonomy of human judges. However, this does not imply human biases or subjectivity are removed from the judicial process, as humans ultimately design the smart systems and algorithms. Wang (2019) argues that technology in and of itself does not constitute judicial justice. Instead, it is a conduit through which to achieve it. Its advantages can also turn into disadvantages that subvert reform goals in other contexts.

For example, Cheng (2018) associates judicial justice with the treatment of evidence in criminal cases. He argues that judges' discretion is crucial in the correct evaluation of evidence, which is essential in providing a fair judicial outcome. Automating this evaluation through the use of learning algorithms will disrupt this. To automate the evaluation of evidence, one needs to give every type of evidence a certain weight so that the algorithm can determine whether the evidence meets certain thresholds for a verdict. He implies this kind of "automated statutory evidence system" will limit judges' capacity to assess the evidence according to their logic and the circumstances of the case. Judicial officers could "play" the system and only provide evidence that they know will meet the statutory requirements so that the judge can do nothing but render a guilty verdict.

Cheng (2018) also asks who ultimately decides what justice means? The automation of justice requires the explicit specification of all judicial knowledge through coding. It forces a developer to make explicit the grounds for every single decision and reasoning. Judicial organs outsource the development of these algorithms. Therefore, they allow technology companies and computer engineers to influence the administration of justice. He concludes that algorithms will inevitably kidnap judicial fairness.

In short, when it comes to judicial fairness, it is unsurprising that judicial informatisation is often called a double-edged sword. Positive and negative implications are often discussed together.

Conclusion

Despite nearly four decades of constant reform, many political-legal barriers to justice reform remain hard to overcome. The key reform concepts that have emerged from this review have been part of the discourse on judicial reform for decades (Nesossi and Trevaskes, 2017). In this sense, the literature reflects longstanding issues that have been identified for decades as hard-to-resolve problems.

Therefore, the policy of building smart courts and judicial informatisation should be understood within this light of constant reform. While reform has aimed to improve judicial efficiency for decades (Grimhede, 2006), this occurs in a context of notoriously understaffed and underfunded courts (Gong, 2004; Wang, 2013). One might argue reforms are doomed to fail without addressing fundamental political-legal and organisational barriers. According to the scholarship, there exists no doubt the advent of technological applications in the judiciary will address the efficiency conundrum in many courts finally. However, how courts' embrace of this technology is changing their functioning remains to be seen.

Additionally, many discussions that emerged from the review related to judicial discretion. The scholarship is divided over the assessment of smart courts' impact. Whether "codified" or "mechanised" justice is a desirable outcome depends on whether one favours standardisation or discretion (e.g. Re and Solow-Niederman, 2019; Roth, 2016). In this, Wu's (2018) comment on how to manage judicial discretion reflects the general dilemma of China's judicial system (Roberts and Pei, 2016; Woo, 1999). In a context of increased pressure and accountability among judges (He, 2021), further avenues of research might want to examine the extent to which automation and digitisation enhance supervision and control of Chinese judges and how this impacts their behaviour and adjudication work.

The success of smart courts in enhancing procedural and substantive fairness remains to be seen as well. Here, the review finds a more divided debate and reveals how one's understanding of normative concepts shapes and influences how one evaluates automation and digitisation. The instrumentalist understanding of the role of courts and law in China's political-legal context might explain the generally positive assessment in the literature.

Finally, it is undeniable that technology has become instrumental in China's judicial reform. China is leveraging the power of technology to break through the "limits of authoritarian legality" (Gallagher, 2017). Moreover, the Chinese judiciary's enthusiastic embrace of automated and digitalised justice (Stern et al., 2021) stands in stark contrast with other countries' relative reluctance to adopt the same advanced applications. Further comparative literature reviews would help analyse what and how issues and themes in the different discussions overlap or contradict. Especially on normatively loaded concepts such as protecting human rights and fairness of procedures or trials, a comparative review would prove extremely

valuable. Given China's quest to become the leading power in artificial intelligence, understanding this is all the more critical.

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