From a Panacea to a Panopticon: The Use and Misuse of Technology in the Regulation of Judges

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From a Panacea to a Panopticon: The Use and Misuse of Technology in the Regulation of Judges

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This Article reveals the untold story of Legal-Net, Israel's cloud-based judicial management system. While scholarly attention has thus far focused on the narrow question of the impact technology may have on judicial decision-making or on efficiency, little has been written on the manner in which technology affects the regulation and management of judges and the administration of justice as a whole. Through a combined historical analysis and interview methodology, we trace the development of Legal-Net from the early 1990s and situate it within a theoretical law-and-technology context. Detailing Legal-Net's trajectory provides meaningful insights as to the relationship between regulation, technology, and the judicial role. More specifically, it unearths four approaches to technology as a regulatory tool, harnessed by the state to govern the public sector itself (and in particular, the production of justice): the bureaucratic/administrative approach, the structural approach, the managerial/integrative approach, and the normative approach. While distinct, these approaches interlace and demonstrate that the processes through which organizational technology is developed and implemented are far from value-neutral. The emerging technological ecosystem and in particular the "technological gaze"—the omnipresent data collection via managerial technology—have considerable implications on the manner in which judges are nudged to comply with expectations. The research further reveals that, as a new technological ecosystem was established, so was the internal perspective of judges regarding the judicial function transformed: from "retail" justice to "wholesale" provision of dispute resolution services (under the law).

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INTRODUCTION

Today, when a judge in Israel hears a case, virtually all her actions are channeled through Legal-Net: a digital, online, and all-encompassing platform. With the noticeable exception of the Supreme Court,[1] Legal-Net pervades the totality of the Israeli judicial system. It is the central venue through which litigants, attorneys, court secretariats, judges, and court administrators interact in each phase of the judicial process. While performing some productivity functions, Legal-Net is, at its core, a management system that monitors the entire span of the production of justice. It nudges, sometimes prods, and overall regulates the various officials (primarily judges), which generates vast amounts of data and analytics at all levels. This data may span from the performance of the individual judge, through specific courts (or departments therein), to the judiciary as a whole.

How was this system developed? What does the development process, led by the state, teach us about the relationship between law and technology more generally? And what impact, if any, did the development and implementation of Legal-Net have on judging? These questions are at the core of this Article. While considerable attention has been paid to the development of market-based platforms,[2] less is known on the development of bureaucratic platforms, namely platforms used by the government to manage its own processes. Similarly, while attention has been directed to the possible effect of data analytics and AI on judicial decision-making,[3] much less is known about how certain court administrations use technology to manage the judicial process.[4]

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1. As elaborated below, Legal-Net "manages" the Magistrate Court (sometimes referred to as "Courts of the Peace") and District Courts in Israel—the two judicial instances that deal with the vast majority of court cases in Israel—civil, administrative, and criminal. However, Legal-Net was not implemented in Israel's third-tier, highest court, the Supreme Court, nor does it reach the religious courts and the quasi-judicial institutions in charge of the execution of judgments. For a description of the system, see *infra* note 26 and accompanying text. For a description of the system managing cases at the Supreme Court level, see *infra* notes 59–64 and accompanying text.

2. *See* Julie E. Cohen, *Law for the Platform Economy*, 51 U.C. DAVIS L. REV. 133 (2017).

3. Daniel Ben-Ari, et al., *Artificial Intelligence in the Practice of Law: An Analysis and Proof of Concept Experiment*, 23 RICH. J.L. & TECH. 2, 35 (2017) ("[W]e can predict that in the long run, AI technologies using machine learning and deep learning techniques may replace lawyers, arbitrators, mediators, and even judges.").

4. By managing the judicial process, or "judicial management," we mean the practices and tools available to administrators (who may, or may not, be judges), in charge of devising, implementing, and enforcing policies and decisions regarding the way the judiciary, a court, segment of a court or individual judges carry out their tasks, including the definition of these tasks, their allocation, and the assessment of the manner in which they were completed. This function is different from the classical judicial function of addressing cases, including judicial disposition thereof, on the merits. The term also refers to the management by a judge of his or her tasks (such as the tools and practices available to him or her), as well as to policies and decisions regarding the environment within which judges operate, their work conditions, facilities, benefits (excluding salary, which is set by constitutional and statutory norms), and auxiliary personnel. For more on judicial management and judicial administration, see THE CHALLENGE OF CHANGE FOR JUDICIAL SYSTEMS: DEVELOPING A PUBLIC ADMINISTRATION PERSPECTIVE (Marco Fabri & Philip M. Langbroek eds., 2000); Michal Agmon-Gonen, *Judicial Independence: The Threat from Within?*, 18 HAMISHPAT 2, 11–12 (2004)

This is important to the extent the technology impacts judicial practices, and potentially even the judicial role, and thus carries normative implications.[5] Legal-Net itself, one of the first systems designed to govern all aspects of litigation, has attracted little scholarly attention thus far.[6] The previously-untold story surrounding the development and implementation of Legal-Net is particularly important in this context. It provides rare insights into the role of governments in developing managerial technologies and the transformation that technology-driven ecosystems may bring about within governmental organizations, including the judiciary. In this respect, this Article will show that Legal-Net ushered in a new era of judicial management (in terms of efficiency and modes of control), thereby raising separation of powers concerns. Additionally, it has conceivably transformed what judging is, at least as perceived from within the system. Whereas before judges viewed their task as primarily requiring the individualized application of a unique type of judicial wisdom (or art) honed over a lengthy legal career, Legal-Net is premised on a bureaucratic logic, which shapes the self-conception of judges as having a standardized role of processing disputes with an emphasis on keeping the production line running as smoothly as possible and thus requires a different set of skills and sensibilities.

In analyzing the development, ascendance, and expansion of Legal-Net, we advance three main arguments. The first argument addresses the development process. Legal-Net in its current form cannot be understood if the rise and ultimate fall of the "grand-design" approach is ignored. This approach sought to harness technology to structure the entire domain of litigation, including fully digitizing courtrooms by establishing a paper-less court, nearly automated case-management tools, and an all-encompassing inventory analytics. The "grand design" attempt came to a screeching halt because it required too grand a technological leap at the time, even for the innovative

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(Heb.); J. Clifford Wallace, *Judicial Administration in a System of Independents: A Tribe with Only Chiefs*, 1978 BYU L. REV. 39.

    5. *See* Charles W. Nihan & Russell R. Wheeler, *Using Technology to Improve the Administration of Justice in the Federal Courts,* 1981 BYU. L. REV. 659, 660 ("[T]echnological innovation will affect the judicial process."); *see also* Casey R. Fronk, *The Cost of Judicial Citation: An Empirical Investigation of Citation Practices in the Federal Appellate Courts*, 2010 U. ILL. J.L. TECH. & POL'Y 51, 60 (citing U.S. Federal Judicial Center Inquiry that found many federal judges embraced early computerized research programs, and also noting that one judge believed computers would "save precious professional time in the routine low-order search which finally uncovers the few pieces calling for close study and lawyer-like judgment."); Shay Lavie, *Appellate Courts and Caseload Pressure*, 27 STAN. L. & POL'Y REV. 57, 87 (2016) ("[T]he Ninth Circuit seems to be more receptive toward implementing changes, particularly responses that appear to be relatively 'neutral'—such as more judicial specialization, greater reliance on visiting judges and a more pervasive use of technology."). As our research reveals, the Israeli judiciary, albeit consisting of some judicial entrepreneurs and embedded in the mentality of the Start-Up Nation, were less enthusiastic in adopting an all-encompassing technological platform.

    6. For a notable exception, see Orna Rabinovich-Einy, *Beyond Efficiency: The Transformation of Courts Through Technology*, 12 UCLA J.L. & TECH. 1, 16–32 (2008). Rabinovich-Eini refers to Legal-Net as a "NGCS—New Generation Court System." *Id.* at 7.

Israeli high-tech sector.[7] It also evoked resistance from a judiciary, weary of the hierarchical structuring of their judicial conduct. Yet, in hindsight this failure is an integral part of Legal-Net's success. It forced the administration and its IT department to break down the ingredients that could and should be digitized and to prioritize development and implementation of the technology. It also forced the engagement of the judiciary and the administrative stakeholders in the design process, which helped secure buy-in and also bridged the legal-technological divide.[8] The platform that was developed on the fragments (and ruins) of the "grand revolution" approach was no less revolutionary, but was (and still is) a product of a piece-meal process, which evolved with twists and turns; only the latest of which reinstituted the comprehensive nature of the system and its overarching control.

The second argument addresses broader law-and-technology themes, related to the attitude towards technology by policymakers charged with judicial management. The incremental manner in which Legal-Net took shape allowed for the interlace of four different policy attitudes. Each attitude approached the law-and-technology interface differently. The first saw technology as a necessity. Policymakers turned to technology because there was simply no other choice, given the rising volume of cases and the mounting complexity of the judicial system.[9] Under this approach, absent technological innovation, bureaucratic systems—the judiciary included—would run into an overload and experience a severe system slowdown, if not failure. The second treated technology as a strong regulatory tool with which agencies govern. Under this approach, technology is a command-and-control architecture, and therefore it should be designed—by building technological "do's" and "don'ts," walls and paths—to strictly channel the judicial process. The third attitude views technology as a regulatory tool, but one operating on a different plane: it is the heart of an ecosystem for synthesizing the needs and interests of the diverse stakeholders. According to this approach, IT platforms generate a sense of, and an actual realization of, "an organization" (or an agency or community). These platforms are enabling tools that not only improve communication, order interactions, and set out structure, but also offer a unifying collaborative-integrative domain that synchronizes and incorporates the needs of the various stakeholders. Having access to the platform, therefore, comes with an ecosystem of functions as well as professional identity and hierarchies, which become central to the operation of government. Under the

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7. This point became particularly evident in the interviews we conducted with Yarden Yardeni, Information Technology and Services Consultant and Contractor—The Administration of Courts. Mr. Yardeni was a key member of the Legal-Net original design team; as a senior officeholder in the Administration's IT department. He also played a significant role in the design of other, related technological endeavors, pursued by the Administration, such as "the E-filing court," which will be discussed *infra* Subpart III.B.

8. *See infra* Subpart III.C.

9. *See* Orna Rabinovich-Einy & Ethan Katsh, *The New New Courts*, 67 AM. U. L. REV. 165, 185–86 (2017) (arguing that many judicial technology efforts were "aimed at improving efficiency and dealing with budgetary constraints, rather than re-imagining the litigation process and the role of courts.").

fourth approach, technology is embedded in, and therefore must reflect, a set of core values. Recognizing that technology is regulative in nature, the questions developers must, and in our context did, face are: which values to implement, how to reach an agreement over such values within the governmental agency, and then how to ensure that the values are appropriately integrated into the technological design and application. This approach—technology as a site of values—was of particular salience when the governmental agency facing IT design questions was an agency whose daily operation revolves around values, namely the judiciary.[10]

The third argument, building upon the last point, addresses the impact Legal-Net had on judging. The management of judges—both system-wide and on an individual-judge level—raises obvious normative considerations (such as the tension between accountability and independence),[11] which could not be assessed if the contemporary interface between technology and the judicial process is not considered. This Article reveals two such normative points. Firstly, and bluntly put, Legal-Net made judges substantially more transparent (to their seniors, but also to their peers) than in earlier days. It transformed the manner in which judges are monitored by presidents of courts, the Chief Justice, Ministry of Justice officials, and, above all, the Administration of Court (the "Administration") and its head, the Director of Courts (the "Director")[12] who administer the production of justice in Israel.[13] Consequently, the manner in which a single judge conducts herself can be easily measured in comparison to her peers (in the same judicial instance or in other courts). Likewise, a section within a court, or a court in a certain location, can be comparatively analyzed in relation to its relevant counterparts.[14] Such transparency may be regarded as laudable, as a component of ensuring that tenured judges provide quality service.[15] But Legal-Net's regulative power may certainly carry significant risks regarding the independence of the single judge (and aggregately, of judges) vis-à-vis her regulators, and indirectly, vis-à-vis other interested segments in and around the

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10. *See id.* at 204 (recognizing that the introduction of algorithms into the judicial process raises questions about what judicial values these algorithms support); *see also* Lavie, *supra* note 5 (suggesting that, to the extent the technology is perceived as neutral, it may be more easily embraced). We show that, to the extent the managerial systems are comprehensive, they are inherently implicated with value judgment regarding their design and managerial assumptions, approach, and expected impact.

11. Nuno Garoupa & Tom Ginsburg, *Guarding the Guardians: Judicial Councils and Judicial Independence*, 57 AM. J. COMP. L. 103, 118 (2009) (addressing the relationship between judicial accountability and independence, as managed by the institution of judicial councils).

12. For an overview of the institutional matrix governing judicial management in Israel, see Guy Lurie, Amnon Reichman, & Yair Sagy, *Agencification and the Administration of Courts in Israel*, 14 REG. & GOVERNANCE (forthcoming 2020).

13. We elaborate further on this argument *infra* Part V.

14. *See* Telephone Interview with Yarden Yardeni, Information Technology and Services Consultant and Contractor, The Administration of Courts (July 1, 2014) [hereinafter Yardeni's First Interview].

15. *See* Rabinovich-Einy, *supra* note 6, at 4 (discussing the impact that novel technology had on Israeli courts' productivity). Measuring the quality of the judicial service is, of course, no easy task. *See* 69 HOW TO MEASURE THE QUALITY OF JUDICIAL REASONING 2 (Mátyás Bencze & Gar Yein Ng eds., 2018).

court system, who may use the transparency to burn rather than cleanse the process.

Secondly, the introduction of Legal-Net required approaching the judicial process as something that may be programmed, according to rules of civil and criminal procedure. Consequently, a particular kind of technology, with its language, manuals, and assessments protocols, was developed and implemented. The unintended consequence of this endeavor resulted in judges conceiving of their role as part of a production line, the function of which is to provide a certain kind of service, and less to be the traditional masters of justice in their courts, focused on resolving individual disputes and guiding behavior according to the laws. This transformation of the self-conception of judging carries potentially far-reaching implications, which may be deemed as revolutionary as the digital system that brought this transformation about.

This argument about Legal-Net's impact on judging points to new areas of inquiry in the broader research field of judicial behavior and motivation.[16] While other scholars have looked into the general question of how institutional design can affect both individual and system-wide judicial reputation,[17] and some have examined the potential of implementing technological solutions to guide the process of decision-making,[18] the specific question of how managerial technology affects judicial behavior is under-examined. This Article provides a possible starting point by laying out the potential connection between technology—the development process, the implementation process, and the product/platform itself—and the judicial mindset. The institutional design and technological ecosystem within which judges perform their role are important and should be further studied, as they shape the judicial environment

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16. Richard A. Posner, *What Do Judges and Justices Maximize? (The Same Things Everybody Else Does)*, 3 SUP. CT. ECON. REV. 1 (1993). Posner's influential essay "models the judicial utility function in terms that allows judges to be seen as ordinary people responding rationally to ordinary incentives." *Id.* at 1. Research has shown that judges are motivated by a range of factors unrelated to the legal questions at issue. One of these factors is a desire for leisure time. *See, e.g.*, Tom S. Clark et al., *Estimating the Effect of Leisure on Judicial Performance*, 47 J. LEGAL STUD. 349 (2018). A second factor revolves around re-election concerns, where applicable. Alma Cohen, Alon Klement & Zvika Neeman, *Judicial Decision Making: A Dynamic Reputation Approach*, 44. J. LEGAL STUD. S133 (2015). More broadly, research demonstrates that judges are prone to the same mental shortcuts as the general population, which often leads to legally irrelevant factors motivating decisions. For evidence that judges "[overweigh] the salient facts of the case," see Pedro Bordalo et al., *Salience Theory of Judicial Decisions*, 44. J. LEGAL STUD. S7, S18 (2015). For evidence that sentencing decisions are affected by judges' exposure (or lack thereof) to more serious crimes, see Adi Leibovitch, *Punishing on a Curve*, 111 NW. U. L. REV. 1205 (2017). For evidence that the racial identity of lower court judges impacts appeal decisions, see Maya Sen, *Is Justice Really Blind? Race and Reversal in U.S. Courts*, 44. J. LEGAL STUD. S187 (2015).

17. Nuno Garoupa & Tom Ginsburg, *Reputation, Information and the Organization of the Judiciary*, 4 J. COMP. L. 228 (2009).

18. Outside the organizations and technology field, other scholars have identified low-technology mechanisms for improving the judicial decision-making process. *See* Zhuang Lui, *Does Reason Writing Reduce Decision Bias? Experimental Evidence from Judges in China*, 47 J. LEGAL STUD. 83, 84 (2018) (finding that forcing judges to write down their reasoning prior to making their decision served as an effective "debiasing procedure").

and are therefore relevant to understanding the different forms of judicial accountability.[19]

The structure of the remainder of this Article will be as follows: we will first address some methodological concerns, given the novelty of the approach we undertook. We will then provide a description of Legal-Net, followed by a detailed account of the four above-mentioned approaches to the interaction between technology and the management of the production of justice, embedded in the development of the platform. We will then address the normative dimension of technology—notably, the transparent, all-observing features of the system. We will conclude with a tentative epilogue, regarding the state of Legal-Net today and, in particular, the ongoing struggle surrounding its implementation, as the system evolves to include data mining and analytics.

I. PRELIMINARY METHODOLOGICAL COMMENTS

A. CASE STUDY

Building on the taxonomy of Alexander George and Andrew Bennett,[20] this Article deploys the "disciplined configurative" approach—an interpretive method that uses theoretical frameworks to understand a discrete development in greater detail. More specifically, we deploy a combined historical analysis and interview methodology in order to unearth the development of Legal-Net. We then turn to law-and-technology frameworks in order to situate the development in a theoretical context, thereby shedding light on the meaning of the development as well as on the frameworks themselves. This methodological approach is useful—and necessary—when a novel research question arises and therefore the relevant literature has not yet identified the applicable variables for covering a larger set of cases. To date, we are not aware of similar examinations of the development of judicial management digital platforms.[21] Focusing on a single case study thus assures that this novel endeavor is conducted in a rigorous manner, sensitive to the relevant nuances and cognizant of the complexities between the various pertinent factors— complexities which may be lost if the research is expanded (and consequently simplified) to include other cases. A case study is an invitation not only for a critical evaluation of the findings with respect to the jurisdiction examined, but

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19. For an overview of different mechanisms for judicial accountability, see Niel Chisholm, *The Faces of Judicial Independence: Democratic Versus Bureaucratic Accountability in Judicial Selection, Training, and Promotion in South Korea and Taiwan*, 62 AM. J. COMP. L. 893 (2014).

20. ALEXANDER L. GEORGE & ANDREW BENNETT, CASE STUDIES AND THEORY DEVELOPMENT IN THE SOCIAL SCIENCES (2005).

21. Other authors have surveyed different technological capacities of different judicial systems through the lens of technological efficiency. *See, e.g.*, Janet Walker & Garry D. Watson, *New Trends in Procedural Law: New Technologies and the Civil Litigation Process*, 31 HASTINGS INT'L & COMP. L. REV. 251, 253 (2008). Our examination of Legal-Net provides a more critical analysis of how the quest for technological efficiency implicates other normative concerns with judicial management.

also for testing the applicability of the methods, the relevance of the findings, and the purchase of the variables in other jurisdictions. It is our hope that this study, and the novel application of this combined historical analysis and interview methodology, will set the grounds for future case studies that will further realize the full potential for a comparative analysis of the relationship between technological platforms designed to manage the provision of "judicial services" and the judicial function itself.

B. WHY LEGAL-NET?

Legal-Net was chosen as the case study for two main reasons. First, Legal-Net is one of the early, if the not the first, cloud-based comprehensive court administration platforms developed by a state. Surprisingly, it has not been fully studied before, despite the apparent importance for understanding the daily operation of the justice system. Second, the system's structure (and modifications throughout the years) raise important questions regarding the relationship between law and technology in the context of managing judges, and regulation more generally. This case study therefore offers fertile grounds for examining the theoretical frameworks within which managerial technology is developed and understood.

C. STRUCTURE OF RESEARCH

Methodologically, the Article is based on the analysis of documents related to Legal-Net's development process, as well as a series of interviews with the men and women who have been—and some of whom still are—involved in the development of Legal-Net. The comprehensive interviews encompassed both managerial officials of various levels as well as members of the courts' technological corpus. Specifically, between the years 2014 and 2016, we conducted ten individual, semi-structured interviews with the following personas: Founding Director of the Israeli Courts Research Division; Former Head of the Israel Bar Association Computing Committee; Head of Administration of Courts Secretariats Division; Former Deputy Director of Courts Administration; Former Member of the Legal-Net Design Team; Information Technology and Services Consultant and Contractor—The Administration of Courts; and several former Directors of Courts who served in that capacity over different periods of times.[22] This Article analyzes the interviewees' responses with regard to the design and implementation of Legal-Net, so as to construct a historical account of the system's development,

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22. Interview with Keren Weinshall-Margel, Founding Dir., Isr. Courts Research Div. Ctr. at Israel Supreme Court, in Jerusalem, Isr. (June 1, 2014); Interview with Haim Ravia, Former Head of the Isr. Bar Ass'n Computing Comm., in Herzliya, Isr. (April 7, 2014); Interview with Shlomit Levy, Head of Admin. of Courts Secretariats Div., in Jerusalem, Isr. (May 2, 2016); Interview with Zion Caspi, Former Deputy Dir. of Courts Admin., in Beit Nekofa, Isr. (Mar. 26, 2014); Interview with Haim Gonen, Former Member of the Legal-Net Design Team, in Tel Aviv, Isr. (May 18, 2014); Yardeni's First Interview, *supra* note 14; Interviews with Several Former Dirs. of Courts (different years), see *infra* notes 33, 47, 66, & 67.

having in mind insights from law-and-technology literature regarding ways to conceptualize the role of technology in judicial management. This endeavor is distinct from neighboring interests in the use of technology for adjudication (for example, for prediction of legal outcomes of particular judges)[23] or for assisting judges in decision-making (such as developing AI technologies).[24] In that respect, the focus of this study is novel. However, as we will show, some of the concerns raised by judicial management platforms correspond with concerns regarding litigation-related technologies.

II. What Is Legal-Net?

Legal-Net is a cloud-based platform that handles the administration of all first-instance and appellate court cases litigated in the Magistrate and District courts in Israel, save for Supreme Court cases.[25] It serves as a unified calendar and time planner for these courts in their entirety. All court appointments, hearings, and courtroom assignments are scheduled via Legal-Net. The system also manages the judicial "warehouse" by tracking down all cases in the system, classifying them according to several categories, and indicating the stage they are at and the next action each file awaits.[26]

Legal-Net serves as the working station for judges. It is the site where all court documents are filed (for example, transcripts of arguments in courts, testimonies and cross-examinations) and where there is an official record of the summoned witnesses, including the date they are expected to appear in court and any details regarding their testimony. It is where judges' drafts are composed, and ultimately where the decisions on the various motions as well as final resolutions are written, published, and stored. Judges are not authorized to write something on their own computers; they are instructed to work on Legal-Net. The platform also serves as a communication system for lawyers and parties at large: therein they submit most legal documents, including motions, affidavits, exhibits, briefs, replies, requests for summoning a witness, and statement of appeals, to name a few. It is also where they subsequently receive judicial input, including all decisions.

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23. John O. McGinnis & Russell G. Pearce, *The Great Disruption: How Machine Intelligence Will Transform the Role of Lawyers in the Delivery of Legal Services*, 82 FORDHAM L. REV. 3041, 3052 (2014).

24. For an early discussion, see Robert J. Spagnoletti, *Using Artificial Intelligence to Aid in the Resolution of Socioscientific Disputes: A Theory for the Next Generation*, 2 J.L. & TECH. 101 (1987); *see also* Pamela S. Katz, *Expert Robot: Using Artificial Intelligence to Assist Judges in Admitting Scientific Expert Testimony*, 24 ALB. L.J. SCI. & TECH. 1, 26–44 (2014); William M. Landes et al., *Judicial Influence: A Citation Analysis of Federal Courts of Appeals Judges*, 27 J. LEGAL STUD. 271, 275 (1998); Lyria Bennett Moses & Janet Chan, *Using Big Data for Legal and Law Enforcement Decisions: Testing the New Tools*, 37 U.N.S.W. L.J. 643, 644 (2014); Theodore W. Ruger et al., Essay, *The Supreme Court Forecasting Project: Legal and Political Science Approaches to Predicting Supreme Court Decisionmaking*, 104 COLUM. L. REV. 1150, 1152 (2004).

25. Generally, the system operates in a Microsoft environment and looks similar, if not identical, to other Microsoft users' desktop.

26. Interview with Shlomit Levy, *supra* note 22; Yardeni's First Interview, *supra* note 14. At that time period, Levy and Yardeni were already employees of The Administration of Courts.

Legal-Net has evidently transformed the manners in which judges conduct their judicial duties. To illustrate, when a judge visits her Legal-Net portal, she has instant access to her task-assignment log and is notified of the tasks awaiting her attention.[27] Furthermore, the judge can see her colleagues' and other courts' workloads and evolution of cases.[28] More specifically, she can see which cases are pending, and at what stage. As a communication system, a large part of the judge's interaction with the rest of the judiciary is mediated through Legal-Net. Thus, for example, a judge is notified by the system when a decision she has made is appealed and when that appeal is resolved. The judge can monitor the appeal and its different stages by herself through Legal-Net.[29] Also, a judge may easily communicate with other judges or officials, using the system's interface, and exchange messages, set meetings, or work jointly on a judgment when sitting in panels.[30] Legal-Net also serves as a portal for core legal services—primarily as an access point to commercial online legal databases. Moreover, it serves itself as a database, as it stores all documents in a searchable and retrievable format.

Since data is updated in real time, Legal-Net functions as a powerful statistical platform capable of producing comprehensive and contemporary reports in response to queries by authorized personnel. From a managerial perspective the entire information and data stored by Legal-Net is visible to the heads of the judiciary. Legal-Net allows them to have credible information on the performance of individual judges or a given court, as well as the entire judiciary's caseload (provided, of course, that the data was entered correctly by the registrars' officers).[31] For example, the system may analyze the synchronic or diachronic caseload of individual judges, sections within courts, a single court, or any court, and compare that section to others. It may offer information about judicial time each legal motion consumed, or run statistical analysis on the average (median, or any other denominator) time it takes certain judicial entities to address certain decisions, rates of granting or rejecting certain motions (per judge or per court), or any other data-based query.[32]

Legal-Net caters not only to the needs of judges, or the judicial administration, but also to those of the legal profession as a whole.[33] Attorneys may log into Legal-Net's website, at their convenience and wherever they may

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27. Yardeni's First Interview, *supra* note 14.

28. Interview with Shlomit Levy, *supra* note 22; Telephone Interview with Yarden Yardeni, Info. Tech. and Servs. Consultant and Contractor, The Admin. of Courts (Nov. 15, 2016) [hereinafter Yardeni's Telephone Interview].

29. Yardeni's First Interview, *supra* note 14.

30. Interview with Yarden Yardeni, Info. Tech. and Servs. Consultant and Contractor, The Admin. of Courts, in Caesarea, Isr. (July 21, 2014) [hereinafter Yardeni's Second Interview].

31. Interview with Shlomit Levy, *supra* note 22; Yardeni's First Interview, *supra* note 14.

32. Yardeni's Second Interview, *supra* note 30.

33. Interview with Judge Boaz Okon, Former Dir. of Courts, in Tel-Aviv, Isr. (April 27, 2015); Yardeni's Second Interview, *supra* note 30.

be, using a "smart card" and a password. Once logged in, they may follow the progression of their cases, submit documents/motions, pay court fees, review future court dates, examine the history of past cases, review the court's log, and so on. A lawyer can see her firm's pending cases with the click of a button. She can also find out the status of a case, request rescheduling, and correspond with other parties. As part of managing the adversarial process, Legal-Net is configured to send out court documents and documents submitted to courts by one side to other parties to the case. Attorneys are regularly notified by Legal-Net upon the submission of a new document, at which point a link is sent to them. Each side can see if the other opened the link and viewed the file. Lawyers may download materials from the court's files for their own use. Technically, the system logs all such interactions.

As of 2017, there were approximately 3900 registered internal users (such as judiciary-officials and judges), of which, on average, 2700 enter the system on a daily basis.[34] As for external users, there were 14,000 law offices connected to Legal-Net with the above-mentioned "smart cards."[35] Approximately 75% of requests filed to courts by attorneys and 50% of all submissions of materials to courts were done by remote electronic filing via Legal-Net.[36] These figures bear testament to the sea change in the production of justice in Israel brought about by Legal-Net.[37]

We are unaware of any other judicial technology platform that integrates so many different functions throughout the judiciary. Legal-Net controls the submission, scheduling, and opinion-writing process across the entire Israeli judicial system (with the exception of the Supreme Court). As one point of comparison, the U.S. federal court system lacks a centralized technology platform responsible for such a range of judicial management functions.[38] Although the U.S. federal judiciary is developing a case management system called Next Generation that integrates more judicial functions than did previous technology frameworks,[39] a variety of technological and institutional design factors will prevent any single technology system from controlling as much of the judicial process in the United States as Legal-Net does in Israel. A single technology platform as powerful as Legal-Net in the American federal system would undermine a long tradition of allowing different federal court systems to set their own administrative policies and rules, as well as their own

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34. Yardeni's Telephone Interview, *supra* note 28.

35. *Id*.

36. It is actually more common for small firms to submit documents to courts' secretariats solely via Legal-Net, rather than manually. *Id*.

37. *Id*.

38. The current Strategic Plan for the United States Federal Judiciary acknowledges both centralized and diffuse components of court technology platforms. *See* JUDICIAL CONFERENCE OF THE UNITED STATES, STRATEGIC PLAN FOR THE FEDERAL JUDICIARY (2015).

39. *Id.*; *see also* John Brinkema & J. Michael Greenwood, *E-Filing Case Management Services in the U.S. Federal Courts: The Next Generation: A Case Study*, 7 INTL. J. FOR CT. ADMIN. 3 (2015).

pace of technological change.[40] Even California, home to so many innovative technology companies, lacks a single technology platform that so efficiently incorporates different components of the judicial process.[41]

Needless to say, given the technological complexity of Legal-Net, the system is not bug-free, and it has even been hacked at least once.[42] Yet, it is difficult to ignore its omnipresence and its comprehensive ability to channel and govern the business of courts in Israel.

III. How Did Legal-Net Come to Be? A Brief Account of Its History & Four Approaches to Technology

We turn now to sketch the historical evolution of the system, which—as noted—has not been told in detail as of yet. The description that we put forward is interpretative and dialectic to a considerable extent. Although there is no evidence supporting the conclusion that the design of Legal-Net followed an *ex-ante* unitary, overarching blueprint, in hindsight—*ex-post*—we can detect four distinct principal policy approaches underlying its emergent design. Hence, on the one hand, we will show that the design process and evolution of Legal-Net has not followed a grand plan, but rather it has proceeded from one semi-improvised solution to another. But, on the other hand, we will illustrate how an *ex-post* analysis of the path leading to the shape Legal-Net has eventually taken reveals a progression from one approach to technology to another. To emphasize, this shift in approaches or attitudes was not pre-planned, nor was it necessarily fully articulated as such by the players at the time. Rather, this progression is revealed by interpreting, in retrospect, the shift in identifying the problem (the solution of which technology was developed to solve), the steps needed to be taken in order to develop and harness technology, and the intended impact of the technological solutions. As we will show, such approaches or attitudes have their own internal logic and set of (usually unstated) assumptions; they also carry unintended consequences (as would any regulatory approach).[43]

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40. Telephone Interview with Retired Judge Jeremy Fogel, Exec. Dir., Berkeley Judicial Inst. (May 2, 2019). Judge Fogel explained that U.S. judges are embracing many technological improvements, while also protecting the values of local court discretion and autonomy in setting certain technology policies. *Id.* Judge Fogel also said that cybersecurity is one area in which there is more of an emphasis on nationwide best practices, since any local vulnerabilities could have national effects. *Id.*

41. California's many different state courts have different technology systems, and in fact some still use paper systems. Carol A. Corrigan & William R. McGuinness, Comm'n on the Future of California's Court Sys., Report to the Chief Justice 214 (2017).

42. Eli Senyor & Maor Buchnik, *Default: Hacker Broke into Israeli Courts System*, Calcalist (Sept. 10, 2012), https://www.calcalist.co.il/internet/articles/0,7340,L-3582640,00.html (Heb.).

43. *See* Edward Tenner, Why Things Bite Back: Technology and the Revenge of Unintended Consequences (1997); Wanda J. Orlikowski, *The Duality of Technology: Rethinking the Concept of Technology in Organizations*, 3 Org. Sci. 398 (1992) (addressing some unintended consequences generated by action and organizational politics in relation to technology); Cass R. Sunstein, *Political Equality and Unintended Consequences*, 94 Colum. L. Rev. 1390 (1994) (addressing the unintended consequences or campaign finance regulation).

The following subsections will show that, in the course of its development, Legal-Net was made to address first administrative, later structural, then managerial, and finally normative (value-laden) challenges beleaguering the Israeli judiciary. By an "administrative" challenge, we mean the bureaucratic, functional task of processing masses of cases, which technology was harnessed to tackle. Under this approach, technology was conceived as neutral in terms of values, ideology or power, and its development conceptualized as a mere response to sub-optimal administration.[44] In the face of severe functional problems concerning case backlogs and unequal distribution of cases, the remedy could have ostensibly been limited to creating computerized case-inventories, along with enabling judges to modernize their own work-environment by advancing their use of computerized word-processing systems, digitized calendar, and access to online commercial databases.[45]

The second approach—which we term the structural approach—took a much more ambitious stand toward technology and the challenges facing the judiciary. Under this approach, the challenges also included the aspiration to structure, rather rigidly, judicial performance, in the belief that judges needed to be more rigorously managed. Therefore, technology should encompass the entire relevant domain or activity under regulation and should incorporate command-and-control rules of "do's" and "don't's." In the Israeli case, the technology was introduced not merely to assist but to structure the transformation of the court system.[46] As infrastructure for the regulation of justices, the novel technology could not merely take the form of an Outlook software, a Microsoft Windows operating systems with a Microsoft Office suite, or some sort of a "Lotus for Organizations."[47] Rather, technology needed to place hard limits on judicial sub-optimal (or perhaps evasive) maneuvers, while providing an innovative, exciting platform for progress to a brighter future premised on a fully digitized judicial process. On this approach, administration officials seemed to regard novel technologies as a panacea to a great many, if not all, of the ailments afflicting the Israeli judiciary, optimistically discounting the limitations of contemporaneous technologies.

A third, more nuanced approach, viewed technology as a solution to a limited set of managerial problems centered on coordination and integration. This latter approach focused, more modestly, on the need to coordinate among the innumerable dynamic parts of the judicial process. Under this approach, technology is taken as a collaborative process; it is a space within which a community of users is generated, integrated, and sustained. It is an

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44. Interview with Zion Caspi, supra note 22; Interview with Shlomit Levy, *supra* note 22; Yardeni's First Interview, *supra* note 14.

45. Interview with Zion Caspi, *supra* note 22; Yardeni's First Interview, *supra* note 14.

46. Yardeni's First Interview, *supra* note 14.

47. Interview with Judge Dan Arbel, Former Deputy Dir. and Dir. of Courts, in Qiryat Ono, Isr. (Feb. 3, 2014).

environment within which governmental identity is shaped and interaction with the (private) profession is managed. Here, the appeal of technology stemmed from the realization that the judiciary was facing not only internal housekeeping difficulties or judicial regulation problems but also, if not mainly, a challenge of synchronization (or lack thereof), and of integrating into a workable whole the needs of the various sub-components and clients. Technology was expected to provide a platform for joint action and a sense of a unitary organization.[48]

The fourth approach to technology as a tool for judicial governance revisited the apparent need for judicial processes to be structured, but from a different perception of what "structure" is and what role technology ought to play in such structure. Its starting point was unabashedly normative. It saw the technology of Legal-Net as a tool to reflect, or even to project, a commitment to implement and enhance a list of familiar liberal-democratic values, such as transparency and access to justice.[49] Legal-Net was seen as a value-enhancing technological platform. Importantly, not only was the normative overtone of this approach unique, but also the style of regulation it espoused. It saw technology as regulating the system primarily via information—the very knowledge Legal-Net produced—rather than by hard and fast rules in the style of command-and-control regulation.

With this brief synopsis in mind, we turn to a more detailed analysis of the four approaches and the annals of the development of Legal-Net.

A.   THE ADMINISTRATIVE PERSPECTIVE

Our journey begins in the early 1990s, when the Israeli judicial system was facing considerable managerial challenges, attributable to the rise in backlog and failing management and technological infrastructures.[50] Amazing as it may sound, so dire was the judiciary's technological state at that point that the Administration of Courts was lost in the dark when it came to the most basic of details: it lacked a sufficiently credible estimation of the number of

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48. It has been suggested that technology is not a tool, but a reflection of a sought-after structure: "[S]ociological approaches tend to emphasize either the potential of human agency in addressing the implications of technological development or the structural dominance of technological systems and logic. . . . [T]he technology is either the logic of the structure or a reflection of a newly formed structure." *See* Arthur Cockfield & Jason Pridmore, *A Synthetic Theory of Law and Technology*, 8 MINN. J.L. SCI. & TECH. 475, 478 (2007).

49. The fourth approach is also acknowledged by Cockfield & Pridmore, *supra* note 48, at 480. ("[Some believe that] technology is completely neutral, solely serving the intended purposes held for it by its users. . . . [However, even under this approach,] human beings can and do direct the use of technology."). Thus viewed, the technology of Legal-Net can certainly be used to achieve the normative goals envisaged by this approach.

50. *See* Dan Arbel, ה-21 במאה המשפט בתי מיחשוב [*Courts Computation in the 21st Century*], 29 JUD. SYS. J. 13 (1999) (Heb.); *see also* Meir Shamgar, משפטי מידע ואיחזור משפט למיחשוב הוועדה [*The Committee for Judicial Computation and Restoration of Legal Information*], 11 JUD. SYS. J. 13, 17–18 (1987) (detailing the introduction of the Committee for Judicial Computation and Restoration of Legal Information in 1987).

legal proceedings handled by the Israeli courts.[51] Back then, the system relied on two sources: one was handwritten logs, kept in each of the courts' secretariat, listing the cases opened, motions submitted, and cases closed. These ledgers, sometimes written in pencil to allow corrections, were the backbone of the system. The second source was the Mainframe—a computer that stored entries regarding opening and closing of cases (with general reference to their nature, such as criminal or civil). The data was entered manually at intervals, and output could be printed from the Mainframe itself.[52]

In the mid-1990s, administration officials took an initial step to modernize judicial management by embarking on a preliminary computation of courts' secretariats with the introduction of Mainframe programs (beyond the basic software already in use).[53] These applications enabled the courts' secretariats to provide the Administration with some elementary information at intervals. Retrieving (and printing) this information required the suspension of data input until the retrieval software was executed and the output was printed, and therefore prior coordination was necessary. However, the Mainframe software was inappropriate for the tasks at hand. For example, it did not track the physical location of a file or the stage a proceeding reached. While it was possible to know if court hearings began or ended (and with what result), there was no way to track the various motions within cases, nor to ascertain whether cases were dormant or not (and why).[54]

Particularly troubling was the fact that under the 1990s framework, there was no central database or data clearinghouse through which to monitor, let alone to control, the flow of cases in the organization beyond entry and exit. The data was not uploaded to the Mainframe in real time, nor was there an option to retrieve the information in real time from the various courts. Moreover, there was no way to assess accurately the complexity of the litigation: the time certain cases consumed, the ratio of motions per judge, junctures where cases were likely to hit bottlenecks, and so on. Consequently, it was impossible to design intelligent scheduling modalities and, more specifically, it was difficult to predict how long conducting evidentiary hearings would last in each case. Under such conditions, judges' performance could not be credibly systematized and streamlined.[55]

While the judiciary was plagued by aging infrastructure, law offices were experimenting with novel technologies. Any contemporaneously appointed

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51. Hadas Magen, משרתם של שני אדונים. ראיון פרישה עם מנהל בתי המשפט, השופט דן ארבל [*The Servant of Two Masters. Retirement Interview with Chief Justice, Dan Arbel*], GLOBES (May 30, 2004), http://www.globes.co.il/news/article.aspx?did=800528 (Heb.).

52. Interview with Shlomit Levy, *supra* note 22; Yardeni's First Interview, *supra* note 14.

53. Interview with Zion Caspi, *supra* note 22. Mainframe is an operating system, that is, a collection of programs that manages a computer system's internal workings: its memory, processors, devices, and file system. *Id.* Mainframe operating systems are commonly used in large organizations. *Id.*; *see also* Rabinovich-Einy, *supra* note 6, at 16–17.

54. Interview with Shlomit Levy, *supra* note 22; Yardeni's First Interview, *supra* note 14.

55. Yardeni's First Interview, *supra* note 14.

judge from the private sector would experience a technological step back upon using court technology, as courts lacked the ability to access the fast-emerging commercial legal databases, use networked word-processing systems, or otherwise communicate with the parties.[56] Judges expressed frustration with the functionality of court technology.[57]

Generally, at the time, courts' reactions to the mounting technological challenge were local. Various presidents (or vice presidents) of courts confronted technological problems as they emerged in their own jurisdiction. For instance, in Tel Aviv, a local system, based on rather simple tools, was developed to address the issue of case allocation (we shall return to this system, called "Clouds," in the following Section).[58]

Similarly, at the Supreme Court, an independent computerized database was created in 2000.[59] It allowed the Chief Justice to credibly ascertain, for the first time, the number of cases filed in a certain timeframe, the number of cases concluded, and the number of cases pending a decision.[60] The Supreme Court's database enabled the Chief Justice at the time, Aharon Barak, to acquire trustworthy information regarding the Court's caseload, distribution of cases, and additional administrative specifications.[61] The novel database featured "court log" software,[62] which allocated cases among the justices and provided a credible inventory of Supreme Court cases.[63] The log made it possible to carry out basic statistical analysis. As the Supreme Court log was installed, Chief Justice Barak noted that, until that point in time, the Court had only a rudimentary system lacking a center; only now, said Barak, did it have a heart.[64]

Other courts tried to improve their reliance on the Mainframe software. Some courts attempted to introduce a tool to enable access to the Mainframe from the court halls, thereby allowing the Administration of Courts a better sense of the day-to-day operation of courts. The idea was to enable administrative personnel to update the Mainframe from the halls themselves, close to real time. Additionally, as part of this development, direct lines of

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56. *See* Nihan & Wheeler, *supra* note 5, at 664 ("Judges, and by acculturation their administrative staffs, tend to give great weight to time-blessed administrative methods.").

57. Interview with Zion Caspi, *supra* note 22; Yardeni's Second Interview, *supra* note 30. It is evident that the judges' frustration fueled the need for technological advancements.

58. Interview with Dan Arbel, *supra* note 47; Interview with Zion Caspi's, *supra* note 22; Yardeni's First Interview, *supra* note 14. Arbel's interest in technology was widely known amongst his colleagues.

59. It was a Structured Query Language (SQL) database. The creation of the database and its management were attributed to Judge Okon. *See* Yardeni's Telephone Interview, *supra* note 28.

60. Interview with Zion Caspi, *supra* note 22; Yardeni's Second Interview, *supra* note 30; Interview with Haim Gonen, *supra* note 22.

61. Interview with Dan Arbel, *supra* note 47; Interview with Zion Caspi, *supra* note 22; *see also infra* notes 128–135 and accompanying text. For more on Barak's support of the computation process, see *infra* Subpart III.D.

62. The "Court log" was also SQL-based, and it is still in use today. *See supra* note 59. Since first built, it has been operated by the "Magic" application generator. Yardeni's Telephone Interview, *supra* note 28.

63. Interview with Haim Gonen, *supra* note 22.

64. Interview with Boaz Okon, *supra* note 33.

electronic communication were finally formed between courts' secretariats and court halls.[65]

Important as these attempts were, they were eclectic. Moreover, responses relying on the Mainframe were precarious, as the Mainframe suffered from several shortcomings. First, short of a full re-wiring and an upgrade of the communication networks, the disconnect between courtrooms and the secretariats in the numerous courts was endemic and debilitating. Second, the Mainframe did not support new commercial legal databases that were created at that time, which led to pressure from judges—eager to make use of these databases—to upgrade the technological infrastructure. Third, the Mainframe could provide only basic information (for example, it basically logged only the initial filing and termination dates). Fourth, and most devastatingly, the Mainframe began to crash regularly. Hardware and software were outdated and had to be upgraded or replaced. Our interviews reveal that in the late 1990s, the Administration's IT team came to work each morning hoping the system would survive the day. As noted, in the mid-1990s the backlog in cases increased at an alarming rate,[66] and all agreed a swift response was needed. The lack of credible data was seen as a major hurdle.

Faced with such informational deficiencies, the judiciary's top officials embarked, at the end of the 20th century, on a few technological initiatives in the hope of paving the road to proper management of the court system.[67] As part of the overall endeavor to address both issues—the need to network the system and the necessity to better manage the case flow within the system— the recently appointed Director of the Court Administration, Judge Arbel,[68]

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65. The Mainframe was originally located in the IBM building in Tel-Aviv, and not in a court or the Administration's building. Interview with Haim Gonen, *supra* note 22. The standalone computers could not communicate with computers in other courtrooms, judges' chambers, or secretariats. Connecting courtrooms to the secretariats allowed for acquiring basic information regarding, for example, dates for particular procedures. The information that could be shared was still basic. For example, as it was not clear from the Mainframe whether parties received documents from the courts. Interview with Shlomit Levy, *supra* note 22. There was an attempt to use the Mainframe also to assign case numbering. This function was traditionally handled manually by the different secretariats. The handwritten master log was the only source with which one could match a certain case number to the rest of the information about the case.

66. According to Arbel, during Ravivi's term, the overall caseload of the Israeli judiciary was 1,200,000 cases that were handled by 400 judges. Interview with Dan Arbel, *supra* note 47; Interview with Moshe Gal, Former Dir. of Courts, in Tel Aviv, Isr. (Feb. 24, 2016). For an explanation of the possible reasons for the increase in litigation, see *infra* note 78 and accompanying text.

67. Those initial steps were taken under the guidance of Director Ravivi (1994–1998) and his successor, Judge Dan Arbel (1998–2002). As part of the effort to modernize the judiciary's technological infrastructure, a group of Israeli judges took part in a fourteen-day seminar in the Institute for the Study and Development of the Legal System in San Francisco in March 2000. The seminar was also attended by several American judges. *See* Letter from the Chamber of Aharon Barak, Chief Justice, to Judges Who Took Part in the S.F. Seminar, (Jan. 11, 2000) (on file with author); *see also* Interview with Dan Arbel, *supra* note 47; Interview with Zion Caspi, *supra* note 22. Israeli delegations also visited Singapore, where "E-filing" and "Paperless" Courts had already been introduced. Interview with Judge Yitzhak Ravivi, Former Director of Courts, in Herzliya, Isr. (Feb. 3, 2014).

68. Prior to his appointment, Judge Arbel was the President of the magistrate courts in Tel Aviv and The Center, and prior to that he served as the deputy to Judge Ravivi who was, at the time, the president of these

introduced the Israeli Courtrooms Management System (CMS), which was designed to provide a better assessment of the judicial workload.[69]

The CMS made computerized legal databases available to judges not only while sitting in courtrooms (and using the standalone computer placed therein) but also while working in chambers.[70] The basic idea was to end the use of standalone computers and connect the separate courtrooms to one another, as well as the courtrooms to the court secretariats. Additionally, the CMS took the assemblage of information regarding judges' and courts' performance to a new level: it could indicate how many cases were pending in each court, to whom each case was assigned within each court, and the status thereof. For the first time in the history of the Israeli judiciary, the system's chiefs—primarily the Chief Justice and the Director of Courts—could obtain a somewhat realistic understanding of the different courts' caseloads.

But it was clear from the outset that there was only so much CMS could achieve, even once it was fully implemented in the numerous courts. It was essentially a patch, put in place to meet needs unmet by the Mainframe by connecting courts' computers to each other. Thus, expectedly, as the system was developed and implemented, the CMS technological infrastructure began to malfunction as well. By 1998 it became clear that a major overhaul was required, and that a new technology must be installed.[71]

But before we turn to the response of the system to this sense of impending crisis, we must note that the short-lived CMS had an unintended impact: it alerted judges to the relationship between "housekeeping" technologies, the regulation of the judicial functions and, ultimately, judicial behavior. While CMS addressed obvious administrative needs—such as the need to connect courtrooms to registrar offices, and chambers to courtrooms, as well as to connect them all to the commercial legal databases—it was also about using technology to generate credible statistical knowledge about caseloads and backlogs. While the old Mainframe provided basic data, CMS was designed to improve that dimension under the premise that technology should be harnessed to better manage the judicial process by generating

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courts. *See* Interview with Dan Arbel, *supra* note 47. In those capacities, Arbel worked toward local solutions, primarily based on seeking ways to network local courts. *Id.* It was based on this experience that upon appointment to the position of Director, Arbel sought to network the judicial system, building upon Windows' capabilities. *Id.*

69. At the same time, Professor Niv Ahituv of the Tel-Aviv University School of Management devised a "strategic plan for information systems and computation of the courts." The "Ahituv Report," submitted in November 1996, advocated key elements of E-filing with a view to reducing the number of paper court files, increasing storage space within the courts, preventing file disappearance, and reducing attorneys' visits to the courts. Additionally, the computation of courts secretariats also advanced the abovementioned computation of the Supreme Court. *See* Interview with Dan Arbel, *supra* note 47; Interview with Haim Gonen, *supra* note 22.

70. These actions had great practical significance as they allowed, for example, for the convenient altering of courtrooms during a trial, an option that hardly existed prior. But still, it remained only on the local computer network level. *See* Interview with Zion Caspi, *supra* note 22; Yardeni's First Interview, *supra* note 14.

71. *See* Interview with Zion Caspi, *supra* note 22; Yardeni's First Interview, *supra* note 14.

reliable data in real time, including data regarding the productivity of each judge.[72]

In fact, it did not take much for the judges themselves to become aware of the importance of the short episode of the CMS. They were quick to realize its novel managerial dimension as soon as it became known that the CMS generated relatively detailed monthly reports regarding their productivity. Not long thereafter, judges gathered that their distinct performance could be—and, in fact, was being—monitored by the heads of the judicial system.[73] Furthermore, it became evident to judges that the reports' findings had consequences. Notably, judges with weak performance reports were summoned to Chief Justice Barak and the Director of Courts.[74] Although the content of such meetings was not made public, it seems reasonable to assume that judges perceived these meetings, which were prompted by negative performance reports, as indicating the advent of a new, higher level of accountability over the judiciary. The publication of the report generated some resentment, and a number of judges even expressed their bitter sentiments[75] in tandem with their objection to other managerial reforms that they saw as limiting their own control over the judicial process.[76] As we shall see next, however, for others this backlash indicated that something must be done in order to reign in inefficient judges whose performance was held to be out of line.

B. The Structural Perspective

After it became evident that a technological overhaul was required, two interrelated questions had to be answered. The first was about the "how": was

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72. *See* Nihan & Wheeler, *supra* note 5, at 661 ("[T]echnology can improve the organization's—in this case, the court's —ability to collect and analyze data, thus enhancing efficiency.").

73. For a sequential approach, which suggests that different ways of managing and monitoring judges pose a threat to the judicial system, see Frank M. Coffin, *Grace Under Pressure: A Call for Judicial Self Help*, 50 OHIO ST. L.J. 399, 402 (1989) ("Judges are presently beset by pressures to subject other judges to sanctions for substandard conduct, to seek more professional management by judicial technocrats . . . . The ascendance of the management-governance function, whether by collegial group, technocrat, or committee, poses, if untouched, an insidious threat to the judicial functioning of the judiciary.").

74. As the person who was in charge, Caspi was aware of the influence that the reports had on Judges. Caspi's interview, *supra* note 44.

75. *See* Interview with Zion Caspi, *supra* note 22.

76. Judges resented also Director Arbel's initiative to institute "the Focal Judge" Program, according to which cases would be first dealt by a Focal Judge who was able to discern the focus of the case, ascertain the scope and nature of the dispute, decide whether case could be settled, or whether it should be directed to further litigation. It was argued that the split between a Focal Judge and the judge, responsible for disposing of the case, only duplicated judicial procedures. Indeed, today the idea of Focal Judge is hardly used in courts beyond the criminal process. On Focal Judges, see Kenneth Mann, סדר דין פלילי מנהלי: הסדרי טיעונות הרשאות שווא של אשמים ופיקוח שיפוטי [*Administrative Criminal Procedure: Plea Agreements, False Convictions of Guilty Defendants and Judicial Review*], *in* בעיות ואתגרים – חוק פלילי וסדרי דין פליליים בישראל צדק במערכת המשפטית? [CRIMINAL LAW AND CRIMINAL PROCEDURE IN ISRAEL—PROBLEMS AND CHALLENGES] 229, 245–46 (Alon Harel ed., 2017) (Heb.); *see also* THE PUBLIC DEFENSE OFFICE, 2014 דוח שנתי לשנ [ANNUAL REPORT FOR 2014] (2015) (Heb.); Interview with Dan Arbel, *supra* note 47.

the project at issue to be carried out by the organs of the State? Or, rather, should the Administration of Courts turn to the private market in search of technological solutions? Should the Administration just resign itself to solutions that can be bought off the shelf? The second question was more fundamental, focusing on the purpose: what should be the primary underlying demands to which the new technology should respond—administrative and productivity-oriented, or structural and regulative? More specifically, the search for purpose required addressing the policy that should undergird the necessary technological transformation—should it be the administrative outlook seeking to enhance productivity by putting in place networked scheduling and inventory technologies as the be all and end all of the system? Or should the technology be designed to address other concerns of the system as well, beyond warehousing, scheduling, and productivity tools? Under the former approach, it was better to focus on one aspect of the system and adopt a purely administrative look geared towards efficiency. Under the latter, it was better to adopt a more holistic approach and address productivity among other goals (such as fair distribution of cases within the system). The latter approach also suggested that technology and its development process may be used not only as a mean to achieve predetermined goals but also as a tool for devising and prioritizing the goals themselves.[77]

It was Judge Arbel, the Director of Courts and an avid aficionado of technology (with a background in tech support), who seized the opportunity. He sought not only to technologically innovate the system but also to "think big" by digitizing the entire structure, thereby harnessing technology to regulate judges. It was also clear to him that the state should play a leading role in custom-designing the system.

Recall that complaints about judicial backlog were mounting.[78] The judge-to-case ratio plummeted and, equally importantly, the relative

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77. *See* Cockfield & Pridmore, *supra* note 48, at 497 (suggesting that technology can do both, "the dicta that 'code is law' represents such an explicit attempt to see how a certain form of technology—the software and hardware technologies that enable the Internet—can constrain or enable certain forms of individual behavior. Hence the code can potentially be directed by regulators in such a way to arrive at more optimal forms of policy.").

78. Interview with Dan Arbel, *supra* note 47; Interview with Zion Caspi, *supra* note 22; Interview with Yitzhak Ravivi, *supra* note 67. We should note that in the 1990's, Israel saw a generational transformation. The population dramatically increased, as a result of immigration, primarily from the former Soviet Union, but also from Ethiopia. *See, e.g.*, Dvora Hacohen, *Mass Immigration and the Demographic Revolution in Israel*, 8 ISR. AFF. 177, 182–185 (2001). Population growth (and the accompanying frictions) led to an increase in civil and criminal disputes. Concomitantly, Israel had emerged from a deep economic crisis, experiencing substantial growth in economic activities and significant processes of privatization. *See* DAPHNE BARAK-EREZ, אזרח-נתין-צרכן - חוק וממשל במדינה משתנה [CITIZEN-SUBJECT-CONSUMER—LAW AND GOVERNMENT IN A CHANGING STATE] 77–127 (2012) (Heb.); ITZHAK GALNOOR ET AL., PRIVATIZATION POLICY IN ISRAEL: STATE RESPONSIBILITY AND THE BOUNDARIES BETWEEN THE PUBLIC AND THE PRIVATE] (2015) (Heb.); EYAL PELEG, הפרטה כפרסום – גורמים פרטיים בחוק הציבורי [PRIVATIZATION AS PUBLICIZATION—PRIVATIZED BODIES IN PUBLIC LAW] (2005) (Heb.). Market-based economic growth is often accompanied by a rise in litigation. *See* Gerhard Clemenz & Klaus Gugler, *Macroeconomic Development and Civil Litigation,* 9 EU. J.L. & ECON. 215, 216 (2000). Furthermore, as technology evolved and with the acceleration of globalization, economic (and

percentage of lawyers in society climbed at the turn of the century: by the late 1990's and early 2000's, Israel had many more lawyers per capita.[79] As lawyers became more entrepreneurial—as a result of the increased competition, in response to a suppressed demand, or as part of the development of more sophisticated causes of action that usually follow economic growth— some judges did not keep up with the rise of litigation and the intensifying demands for swift resolutions. Little wonder that our interviews reveal that presidents of courts felt, around that period in particular, that prevailing judicial management practices should be critically revisited.[80]

Director Arbel realized that expanding the administrative perspective to include a regulative dimension may not only bring courts up to par with law offices and meet warehousing concerns, but it may also assist in mitigating some of the root problems afflicting, in his view, the system as a whole. These included the issue of regulating the manner in which judges (and lawyers) were performing their duties, so that the legal process would achieve greater efficiency. He therefore wholeheartedly embraced the structural perspective,[81] premised on the notion that technology offers an architecture for command and control.[82]

Arbel, Director of Courts as of 1998, based his vision on his own experience as the President of the Magistrate Courts of Tel Aviv-Jaffa and Central Districts.[83] In that latter capacity, Arbel initiated and oversaw the

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criminal) misfeasance became more sophisticated. *See, e.g.*, URI RAM, THE GLOBALIZATION OF ISRAEL: MCWORLD IN TEL AVIV, JIHAD IN JERUSALEM (2005). As a sociological matter, the rise in caseload can be attributed to the further diversification of the society and the failure of the hegemony-based social structures that offer dispute resolution outside the court system to cope with the increase in demand for dispute resolution within and across social groups. Social scientists and legal historians have claimed that disputes are litigated when other forms of dispute resolutions fail. These alternative forms include turning to respected figures, who are held as honest resolvers of disputes pursuant to the values of the community. Such a system works so long as the disputes are largely occurring within the community, or so long as one community enjoys a hegemonic status, and therefore other communities follow its practices. *See e.g.*, Bruce H. Mann, *The Formalization of Informal Law: Arbitration Before the American Revolution*, 59 N.Y.U. L. REV. 443 (1984). Israel, a divided society, moved from a collectivist ethos and socialist tendencies towards a neo-liberal market-based economy in the 1980s. *See, e.g.*, Ran Hirschl, *Israel's 'Constitutional Revolution'" The Legal Interpretation of Entrenched Civil Liberties in an Emerging Neo-Liberal Economic Order* 46 AM. J. COMP. L. 427 (1998), 427–428). This ostensibly, led to an increase in commercial disputes—some of which were complex and across economic sectors—and a decrease of reliance on non-litigious forms of dispute resolution.

79. Raanan Sulitzeanu-Keinan et al., *Judicial Burden—A Comparative Study of 17 States* (Haifa Center for Public Management and Policy 2007) (Heb.).

80. *See* Interview with Dan Arbel, *supra* note 47; Caspi's interview, *supra* note 44; Gonen's interview, *supra* note 60; Yardeni's First Interview, *supra* note 14.

81. *See* Interview with Dan Arbel, *supra* note 47.

82. The literature on command-and-control regulation is vast. *See, e.g.*, Richard B. Stewart, *Administrative Law in the Twenty-First Century*, 78 N.Y.U. L. REV. 437 (2003); Rena I. Steinzor, *Reinventing Environmental Regulation: The Dangerous Journey from Command to Self-Control*, 22 HARV. ENVTL. L. REV. 103, 103-18 (1998) and Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333 (1985).

83. Arbel served as the president of the Tel-Aviv and Central Magistrate Courts in the years 1994–1998. *See Dan Arbel,* ISR. JUD. AUTH., https://judgescv.court.gov.il/898584ba-645e-e811-8105-0050568a6817%D7%93%D7%9F-%D7%90%D7%A8%D7%91%D7%9C (last visited Mar. 20, 2020) (Heb.).

regular operation of the "Performance Report System" (nicknamed "Clouds").[84] Clouds was designed to assist Arbel in managing "his" courts by allocating cases among judges and considering judges scheduling requests. The Clouds system had first taken baby steps in structuring Arbel's courts' administration by generating notifications when a judge's roster showed significant delays or when a case lingered excessively in the pre-trial phase.[85] Arbel's performance system was better than the manual alternative but it was outdated from a technological and managerial perspective, and it was clearly inadequate for the management of the entire Israeli judiciary. However, the idea was there—using technology to solve the core problems of the judiciary:[86] caseload, case-management, and the lack of a proper clearinghouse. Moreover, the technological approach was there, too—using technology as a channeling means, whereby boundaries were set to ensure judges' compliance with their superiors' expectations. Thus, whereas the impetus was administrative in nature, in the sense that the turn to technology was originally informed by administrative concerns, within Arbel's vision the policy goals were perceived on a grander scale.

An ambitious—perhaps overly ambitious—decision was made to embark on a striking project that would digitize and standardize the registrars of all courts, control the scheduling of cases, and structure the entire system's warehouse where cases resided after being launched and before conclusion. It would also create a networked judiciary where chambers, courtrooms, and registrar offices were on the same network (per court, and with an option to establish a national network). It would provide more complete statistical data. Crucially, the system was also expected to structure the judicial process; namely, the system's architecture had to ensure that judges processed cases according to a pre-ordained procedure, which took into account their caseload and pending motions.

Furthermore, so complete was the faith in technology as the bridge to a better and brighter future that the system was expected to usher in a fully digitized judicial process. This emerging vision was of wall-to-wall "E-filing" or a "Paperless Court." It contemplated a comprehensive system through which the entire legal proceeding—the submission of court evidence included—would be digitized.[87] The Paperless Court had several objectives, such as

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84. The nickname was derived from the system's screen background, which resembled clouds. *See* Yardeni's First Interview, *supra* note 14.

85. A case was considered "delayed" whenever no further session was set (for example, for sentencing or hearing), even though it had already gone through the summary phase. Yardeni's First Interview, *supra* note 14.

86. *See* Rabinovich-Einy, *supra* note 6, at 34–35, who suggests that technology will increase efficiency, and will solve judicial problems. ("Efficiency is promoted by digital technologies on many levels. Court proceedings become more efficient for the parties involved, for their attorneys, for the individual judges and for the civil justice system as a whole.").

87. An early version of the idea of digitization of the legal process can be seen in Nihan & Wheeler, *supra* note 5, at 672. ("[T]he Judicial Center has been able to develop and test a further procedure for efficient

reducing the number of court files, thereby alleviating storage space shortage, preventing file disappearance, improving archival searches, and reducing to a minimum attorneys' visits to the courts.[88] The guiding rationale was self-evident: once all components of the process are digitized, judges can easily access any needed materials (ranging from evidence to submissions and from past precedents to decisions in similar matters by other courts). Consequently, considerable bureaucratic hassle is spared, and judicial output is more coherent, timely, and reliable, without hand-written notes on cluttered and misplaced papers.

In accordance with this bold scheme, by the early 2000s the Administration was in the process of conducting a rather fascinating experiment of the "Virtual Courtroom," whose pilot was launched in May 2001 at the Ramla Magistrate Court (in the late Judge Shmuel Baruch's court).[89] The pilot lasted for a year and a half and served as a field test.[90] It was based on experimental, innovative technologies not commercially available anywhere else at the time. The pilot included the scanning of written evidence (or photographing physical evidence) as it was submitted to court and electronically storing it as an integral part of the case file. It also included on-screen, live presentation of court records, videotaping of testimonies, and the video recording of courtroom interactions.

In July 2000, as the preparations for the pilot were underway, and as the Mainframe and CMS were faltering, the Administration published a public tender, inviting companies to develop, operate, and maintain a computerized infrastructure for the entire Israeli judiciary.[91] It was decided that the State lacked the capacity to develop the infrastructure itself, but should play a leading role in its design.[92] The tender specified the following features of the requested infrastructure: computation of the courts secretariats' standard activities (such as documentation and registration of files), setting dates for

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court management . . . the court's docket sheet information is electronically recorded in the main Courtran computers, thus creating the official docket, albeit an electronic docket, of their cases.").

88. These objectives were compatible with Arbel's technological vision. *See* Interview with Dan Arbel, *supra* note 47.

89. *See* Interview with Dan Arbel, *supra* note 47; Yardeni's First Interview, *supra* note 14.

90. *See* Caspi's Interview, *supra* note 44 (arguing that this pilot provoked a lot of interest amongst lawyers and judges alike).

91. *See* Interview with Dan Arbel, *supra* note 47 (claiming that the tender was another step in the technological evolution). The decision to launch the ambitious tender was against the advice of the Israel Bar Association, whose standing Computation Committee was headed by adv. Ron Gazit. As the Administration considered launching a tender to technologically overhaul the Israeli judiciary, Gazit and the Committee met regularly with Judge Arbel and Administration personnel. The Committee members read the tender draft, to which they presented many objections and remarks. As later events would reveal, the Committee's objections were certainly not unfounded. The Israel Bar had self-sufficiently created "Bar-Net"—its own tool that would have allowed lawyers to electronically submit files to courts. However, the endeavor did not succeed due to logistical and financial difficulties. Thus, Legal-Net remained the sole option of 'E-Filing' or paperless court. *See* Interview with Adv. Haim Ravia, former head of the Israel Bar Association Computing Committee, *supra* note 22.

92. *See* Yardeni's First Interview, *supra* note 14.

court sessions, and issuance of summons (all of which had been done thus far manually); credible use of electronic filing (with the use of electronic signature mechanisms); digitizing storage space; and development of statistical and data management capabilities. Since most of the technologies needed for these features were not on the shelf, the State reserved the right to supplement the just-mentioned requirements by adding further details as the system developed.

At the beginning, the tender initiative seemed promising and exciting. It was a truly innovative venture, with the potential of leading the Israeli judiciary to the new frontier where no judiciary had gone before. Moreover, the Finance Ministry—usually a conservative body weary of risky moves with public funds—agreed to secure a hefty sum of money for the project. The Finance Ministry's endorsement was seen by those involved as an indication that the planned course of action was indeed promising.[93] Alas, future events would reveal how over-optimistic State officials involved in the endeavor had been (or, conversely, the extent of resources actually needed for such grand innovation). In order to understand the failure of this bold move, which had left the system tethering on the brink of returning to pen-and-paper ledgers, three developments should be noted.

First, during the months following the publication of the tender, it became clear that the tender and the discussions surrounding it stirred critical reactions among judges.[94] As a general matter, the judges were not eager to cooperate with the process,[95] as they did not see how their needs were fully integrated in its design.[96] Already at the outset, as some consultation with judges began to take place, judges realized that in fact the anticipated infrastructure might restrict their discretion regarding case management, shifting it to "the computer" in the vein of the CMS and the Clouds, only on a larger scale.[97] For example, the system was projected to strictly manage case allocation without accepting overrides from judges. Equally troubling, from the perspective of judges, it could potentially lock judges in by forcing them to conclude the business the system defined as urgent (or overdue) before they could move to other cases. It would thus enforce upon judges a set of tasks they must complete, with deadlines, or else they would not be able to proceed with any

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93. *See* Okon's Interview, *supra* note 33; Yardeni's First Interview, *supra* note 14. Both dispute this decision in hindsight.

94. *See* Yardeni's Second Interview, *supra* note 30.

95. It should be noted, however, that several of the court's secretariats were also unwilling to cooperate with the endeavor, as they were concerned that the projected technological revolution would be detrimental to their future employment. Caspi's Interview, *supra* note 44.

96. For example, judges had not played an active part in the design stage of the secretariat's computation process. *See supra* text accompanying note 47; Yardeni's First Interview, *supra* note 14.

97. Gonen's Interview, *supra* note 60; Yardeni's First Interview, *supra* note 14; Okon's Interview, *supra* note 33. For an example of American judges expressing fear that management structures would undermine their judicial discretion, see Carolyn Dubay, *A Country Without Courts: Doing More with Less in Twenty-First Century Federal Courts*, 48 NEW. ENG. L. REV. 531, 536 (2013) (quoting Chief Justice Rehnquist as stating that "bureaucratization and increased management structures will leave the judges less freedom to exercise personal judgment").

other task—and of course with their presidents (and the Director of Courts) aware of such infractions. As a result, some judges expressed their resentment towards the project.[98] It became evident that designing and later implementing the new infrastructure went well beyond the scope of housekeeping. At the same time, as with the judicial reaction to the CMS, some saw judges' hostility as an indication of the need to resort to such technology to ensure accountability and strict judicial compliance.[99]

Second, as extant technology was not yet ready, especially if expected to be compatible with the Paperless Court vision,[100] there was little comparative experience upon which to rely. Unsurprisingly, the Paperless Court attracted some criticism. It was argued that it was too pretentious and beyond the reach of judges, most of whom were clearly not as technologically proficient as Judge Baruch (nor were they as technophiles as Director Arbel).[101] Judge Baruch himself thought that the actual use of technology in his court diverted his attention away from judging.[102] But most importantly, it was established that the technology was not advanced enough at that stage to meet the requirement of a fully digitized courtroom.[103] By late 2002 the test was terminated.[104]

And third, project leaders realized early on that, as there was no blueprint outlining the specific, detailed requirements the system would have to meet, it would have to be devised on the fly. This meant that the asking price submitted in the tender was projected to reflect a rather high degree of uncertainty.[105] Little wonder, then, that only one company, Electronic Data Systems (EDS), had responded to the tender. Its offering was higher than the Administration's original estimation of the project, causing the Tenders Committee to reject the offer, thus essentially bringing the public tender process to an end.[106]

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98. Okon claimed he had no control over the system's performance even though he was one of its planners. *But see* Jennifer Chandler, *The Autonomy of Technology: Do Courts Control Technology or Do They Just Legitimize Its Social Acceptance?* 27 BULL. SCI. TECH. & SOC. 339, 341 (2007) ("Instead, the idea reflects a sense that despite our belief that we direct the development of technologies and choose whether or not to use them, this control is more or less illusory."). In regard to judges' approach to technology influencing their work, see Coffin, *supra* note 73, at 399 ("Even when the marvels of the electronic age are made available to judges, the very bulk of information obtainable, the plethora of uses suggested, and the rapidity of communication may be seen to threaten the traditional processes of deliberation, discussion, and decision.").

99. Caspi's Interview, *supra* note 44; Yardeni's Second Interview, *supra* note 30; For an argument in favor of more judicial transparency, see also Lynn LoPucki, *Court System Transparency*, 94 IOWA L. REV. 481, 538 (2008–2009).

100. Yardeni's Second Interview, *supra* note 30.

101. These views were also made, amongst others, by Adv. Ron Gazit. Gazit, the head of the Computation Committee of the Israel bar association at that time and one of the leading professionals in his field. *See* Moshe Gorali, *The High Price of the "Paperless Court" Vision*, HAARETZ (Aug. 17, 2011) https://www.haaretz.co.il/misc/1.795216 (discussing the paperless court in May 2002); *see also* Interview with Haim Gonen, *supra* note 22.

102. Interview with Haim Gonen, *supra* note 22.

103. Interview with Shlomit Levy, *supra* note 22; Yardeni's First Interview, *supra* note 14.

104. Interview with Haim Gonen, *supra* note 22.

105. Yardeni's Second Interview, *supra* note 30.

106. Yardeni's First Interview, *supra* note 14.

Following the cancellation of the tender, the funds reserved for the project returned to the Finance Ministry.[107] The Administration of Courts went back to the drawing board, scrambling to make the best out of the core ideas underlying the tender. Its response laid the grounds for what later came to be known as Legal-Net.

C.   THE MANAGERIAL-INTEGRATIVE PERSPECTIVE

The months following the tender's failure were rather chaotic. The Administration was still committed to the project. It determinedly assured the Knesset (Israel's parliament) that things were still moving along, given the mounting critique,[108] and while the secured budget for the venture was "retrieved" by the Finance Ministry, in the wake of the tender's collapse, attempts were made to guarantee a yearly budget for the development of the judiciary technological apparatus. As the Administration tried to figure out what went wrong, four factors stood out. First, awareness that sitting judges should be better integrated into the design of the sought-after technologies sunk in.[109] Second, and related, the key players—the Administration, courts' presidents, the IT team—realized that technology should not necessarily be used in a command-and-control fashion, by rigidly ordering judges how to conduct their business, in order to minimize judicial resistance.[110] Third, the Administration and the IT team understood that while a sweeping technological vision was necessary, it was more advisable to treat the promise embedded in novel technologies more modestly,[111] as well as to proceed one module at a time in the hope of allowing for better configuration of tested technologies and their smoother integration in the existing infrastructure.[112] And lastly, it was recognized that the specifications of the system should be at a much greater detail in order to minimize economic uncertainty for software companies and thus accommodate market concerns.[113] At the same time, Arbel's vision regarding the managerial uses of data was already well

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107. Interview with Dan Arbel, *supra* note 47.

108. *See* The Protocols of the Knesset Constitution, Law and Justice Committee on October 20, 2003, http://main.knesset.gov.il/Activity/committees/Huka/Pages/CommitteeProtocols.aspx (Heb.).

109. *See* Interview with Shlomit Levy, *supra* note 22; Interview with Boaz Okon, *supra* note 33; Yardeni's First Interview, *supra* note 14.

110. As a general matter, it appears that the Administration sought to pursue the development of the judiciary's technology with as little resistance as possible. This probably explained the fact that it made significant advances in this area in the less hostile territories of the secretariats of the criminal and civil departments, as well as that of the labor and traffic courts, since both were less opposed to the integration of modern technology. *See* Interview with Zion Caspi, *supra* note 22.

111. *See* Cockfield & Pridmore, *supra* note 48, at 490 ("[T]echnology is only a tool and has no inherent structure.").

112. Interview with Dan Arbel, *supra* note 47; Interview with Shlomit Levy, *supra* note 22.

113. Yardeni's Second Interview, *supra* note 30.

entrenched. So was his recognition that unified, fully integrated and networked technologies must be developed for the system to be properly managed.[114]

As circumstances imposed themselves on the Administration of Courts, the IT team realized it had to prioritize the most urgent administrative necessities without a grand design.[115] But it was not clear how to prioritize, given that the previous working assumption was that the entire system would be overhauled. As a first emergency step, three technology companies signed an agreement for the maintenance of the existing technological infrastructure,[116] but it was unclear what "maintenance" included, as fixing malfunctions depended on required technological advancements.

Since a much higher level of specification had to be attained, and the incremental approach was the preferred option, the IT professional team, humbled by its hitherto unrealistic methodology, contacted software companies to determine what it would take to develop the various necessary modules. At the same time, in order to ensure the "buy-in" of the various stakeholders, the IT and the Administration of Courts realized it was necessary to comprise a detailed breakdown of the exact needs of various components of the system and its members – judges and administrators alike. With that in mind, the IT team took the lead in trying to determine the various features the system would have to deliver, and their relative priorities.[117]

Under this approach, the regulative function of technology appears in reverse order: because technological development—as the Administration slowly realized—required clear and precise details, a process for establishing these details had to first be put in place. Since no one segment of the organization had, up to that point, a clear understanding of the specific workflows of each and every segment of the entire organization, and as, upon completion, the cooperation of the various segments would be necessary, the Administration embarked on a rather intensive process of consultation.[118] The process encouraged participation and deliberation among some members of the various segments of the system. But even more importantly, as technological solutions were contemplated, questions about ways to integrate the various components were also raised and discussed. Similarly, questions about permissions, access, control, and override were also considered.

The processes of developing specifications for the various technological features had an interesting organizational impact: it generated a sense of belonging to a whole. The process called upon the various segments of the system to articulate their needs, which cultivated a sense of a community. A

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114. *See* Interview with Dan Arbel, *supra* note 47; Interview with Shlomit Levy, *supra* note 22 (both demonstrating, once again, the importance of judicial authority to the technological team).

115. Yardeni's First Interview, *supra* note 14; Interview with Shlomit Levy, *supra* note 22 (emphasizing the technological team's need in creating interim, yet modular, solutions).

116. They were Ness Technologies Ltd., IBM Global Services (IGS), and Taldor. Yardeni's First Interview, *supra* note 14; Interview with Haim Gonen, *supra* note 22.

117. Interview with Haim Gonen, *supra* note 22; Yardeni's Second Interview, *supra* note 30.

118. Yardeni's Second Interview, *supra* note 30.

similar dynamic would later repeat itself, as the design of each of the modules was contemplated and later developed and implemented, technology was harnessed to serve as a platform shared by all segments of the bureaucratic apparatus, thereby bringing them together and constructing a sense of a unified organizational identity.[119] Technology—participation in its development by way of expressing the administrative needs, deciding collaboratively on priorities and designing synchronized workflows—was instrumental in transforming the court system into a unit in and of itself.[120] Each component of the system was present in the online, networked system, and was aware of the challenges the other components were facing. A different approach to technology therefore emerged: technology as an integrative platform, where management pursues organizational goals, related to establishing a sense of shared mission and common practices of communication about such mission.

It should be emphasized, however, that under this approach technology does not only integrate, it also generates power and hierarchy, albeit indirectly.[121] Technology determines who may know what about whom, and who may be authorized to do what with respect to whom and under what conditions. The relationship between technology and power-structures had been directly and vividly visible to all under the previous approach—the top-down "grand-design" approach that sought to harness technology to erect "walls" in order to herd judges in. Under the approach to technology as a professional-community-building tool, power and hierarchy were less obvious, but nonetheless very much present. Access and permission rules were discussed, and a decision had to be taken by the heads of the organization and then justified to the rest of the members. It is this aspect that forced the men and women working on the system to consider the fourth perspective: the values perspective.

D. THE VALUES PERSPECTIVE

Our research reveals that Legal-Net cannot be fully understood without realizing that the policy choices embedded therein consciously reflect values.[122] Pursuant to the consultation processes, and having in mind the initial

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119. For a description of a "Facilitator-type" of regulation and of regulator, see Yair Sagy, *A Triptych of Regulators: A New Perspective on the Administrative State*, 44 AKRON L. REV. 425, 432 (2011) ("[He or she] facilitates public action by providing civic fora where fact-gathering and fact-processing mechanisms are employed.").

120. For a discussion of "judicial production as team work," see Ginsburg & Garoupa, *supra* note 17, at 231.

121. *See* Kenneth A. Bamberger, *Foreword: Technology's Transformation of the Regulatory Endeavor*, 26 BERKELEY TECH. L.J. 1315, 1315 (2011) ("[R]egulators have taken to heart the cyberspace lesson that '[i]f code is law . . . 'control of code is power,' enlisting technological capacity in the pursuit of policy aims" (second and third alterations in original) (footnote omitted)). According to this approach, technology produces power; the more advanced stage is the government understanding that control of technology is the control itself.

122. Lawrence Lessig, *Law Regulating Code Regulating Law*, 35 LOY. U. CHI. L.J. 1, 14 (2003) ("[T]he single most salient feature of cyberspace is its ability to embed controls that resist or reinforce values that we

push-back from the judges, the normative dimension of the design was recognized by its designers, who took pains to ensure that the value choices ingrained therein would be made explicit and could be explained and defended.

This latter perspective revealed itself most clearly around November 2003, a point in time which marked a distinctly new phase in the evolving design of Legal-Net. This phase was associated above all with Judge Boaz Okon, Arbel's future successor, and the man who could be rightly considered Legal-Net's chief designer.[123] It was on Okon's watch that it was decided that the visionary Paperless Court would be replaced by a system that would center on paperless communication, but not necessarily digitize the interactions in the courthouse itself – at least not at the first stage. Moreover, it was Okon who decided, together with the IT team, that in order to proceed with the incremental approach *the legal process itself* had to be analyzed, accordingly, in greater detail.[124]

Okon had become deeply involved with the development of the modules following the collapse of the ambitious tender during the transitional stage detailed above under the Integrative Perspective.[125] Back then, the design team requested that a judge be assigned to closely accompany its work.[126] Okon seemed to be a natural choice for the task, having been in charge of the creation of the abovementioned Supreme Court log during his term as the Supreme Court Registrar.[127]

According to Okon, however, in his capacity as the accompanying judge, he merely tried to implement Chief Justice Barak's vision of Legal-Net, which was premised on certain principles.[128] It appears that although Chief Justice Barak was far from being tech-savvy—until his retirement he wrote his judgment with a pencil on paper—he did consider the development of a sound judicial-management system as highly important. Chief Justice Barak approached most questions regarding the role of the judiciary with values in mind—primarily liberal democratic values. Hence, the principles thereafter embedded in the systems were—and henceforth will be—referred to as "the

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bring to cyberspace. We must understand the manner in which these values are resisted or reinforced if we are to continue the experiment of self-government, where self-conscious choice determines the law we live life subject to."). Lessig argues that the uniqueness of cyberspace is in assimilating the values that humans themselves brought with them when they built this space. *Id.* As indicated in the text, we agree, of course.

123. According to Yardeni, it was predetermined that the design process would take thirty-eight months. *See* Yardeni's First Interview, *supra* note 14. On July 15, 2004, Judge Boaz Okon replaced Judge Arbel as Director of the Courts.

124. *See* Interview with Boaz Okon, *supra* note 33; Yardeni's Second Interview, *supra* note 30.

125. *See* Interview with Shlomit Levy, *supra* note 22; Interview with Boaz Okon, *supra* note 33; Yardeni's Second Interview, *supra* note 30.

126. Yardeni's First Interview, *supra* note 14.

127. *See* The Protocols of the Knesset Constitution, Law and Justice Committee on July 13, 2004, http://main.knesset.gov.il/Activity/committees/Huka/Pages/CommitteeProtocols.aspx (Heb.). It seems that Okon's involvement with the Supreme Court's computation was highly praised by Knesset Members during a session of the Constitution, Law and Justice Committee dealing with the computation of the courts.

128. Interview with Boaz Okon, *supra* note 33.

Barak principles." However, our research reveals that Okon played an instrumental role, not only because he participated in the formation of the principles, but also because it was the integration of principles to technology that made Legal-Net what it is.

Stated broadly, for Barak (and Okon), managing a judiciary was (also) a normative exercise, and since technology was being placed at the heart of the managerial process, it should be designed with normative values in mind.[129] First among these values was transparency and accountability. As Barak saw it, new technologies were critical to improving the judiciary's daily bookkeeping management, *inter alia*, for it would help courts generate coherent, unified, and reliable case-load reports. Such reports were crucial to making the judiciary more transparent and thus more accountable—both to the general public and the community of judges and court administrators.

Given the prominence of transparency and accountability in Barak's thinking of judicial management, he took what may be characterized as a show-them-the-numbers approach, believing that exposing to the general public the judiciary's caseload in a reliable and "neutral" manner would contribute to the overall standing of the judiciary with the public as well as with the other branches of government, such as the Finance Ministry. In other words, Barak was convinced that transparency would reveal to all that courts were overworked and doing their best under the circumstances, so that further resources should be allocated to the judiciary. It seems that Barak was under the assumption that, once it was understood how strained the judiciary was and that judges were exceedingly hard-working and committed, not only could the judiciary dispel unwarranted critique, but a convincing case for securing additional judicial appointments and budgetary increase for the judiciary could be made. A side-benefit might be giving the judiciary greater autonomy to run its own affairs.

According to Okon, Barak was also invested in the judiciary's overall legitimacy. In our context, he realized that public confidence in the courts relied on their ability to produce justice in a timely fashion, without compromising due process, and therefore, to him, backlog was a serious problem, as were pressures—such as time pressures—limiting the ability of judges to conduct their business fairly. He held that the quality of service given to the general public by courts must be improved, and he hoped that the introduction of better technology to the judiciary would be a decisive step forward in this respect (together with other efforts, such as encouraging ADR).[130]

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129. Arthur J. Cockfield, *Towards a Law and Technology Theory*, 30 MANITOBA L.J. 383 (2004).

130. Interview with Boaz Okon, *supra* note 33. It should be noted, however, that such values—accountability, transparency, fairness and rationality in managing the system —also happen to support a shift away from access to courts as an individual right to the production of justice as providing a public service, and then a further shift to court management as an exercise of allocating scarce public resources. This shift is in line with instrumental business-management approaches that value cost-benefit analysis, which were in tension with the ethos of the judiciary (as an institution committed to justice in individual cases). Under a more critical

Barak and Okon recognized that visible disparities among courts (including in the timeliness of their operation, resource allocation, and overall performance and professional execution of case management) threatened the appearance of the rule of law. They realized that the (mis)perception that judges or court presidents sought to minimize exposure of the manner in which they conducted their business was corrosive. A perception that judges were hiding their inefficiencies or obfuscating discrepancies in time spent on similarly situated cases threatened the public confidence in the courts.

At the same time, Barak and Okon also appreciated the importance of the internal-managerial perspective on information. They believed that transparency and the information generated by the system would enable the judiciary's *heads* to realize how efficient each judge, court, and district was. They realized that technology-induced transparency could work inwardly. It might motivate judges, courts, and clusters of courts (for example, several courts within a district) to ensure that they were better than average. It would also avoid unnecessary arguments about case allocation, and other managerial decisions, such as where to place further resources, whether a request to teach or to go on a sabbatical by a judge should be granted, etc.[131] Barak and Okon were also well aware, following the CMS period, that judges were sensitive to equality of treatment; namely, they cared a great deal about their standing in comparison to their peers. They wondered, for instance, if a judge was summoned to discuss his or her performance, would all other similarly situated judges be so treated?[132] Transparency-through-technology could alleviate such concerns and make courts' management visibly fairer in the eyes of judges.

Consequently, one of Barak and Okon's seminal ideas was to map the "routes," or life cycles, of typical cases, divided into the different major legal fields and broken down into their constitutive, standard segments.[133] The resultant matrix was to be projected both internally and externally. Internally, breaking down the legal process to routinized segments would enable the analysis of the judicial and administrative resources that each typical set of cases (for example, criminal, administrative, and so on) required. It was in this context that Okon worked hard to develop "weights" that might allow the comparison of one type of judicial proceeding to another, in terms of administrative and judicial load. Externally, it aimed to provide the general public with an accessible roadmap to complex judicial procedures and litigation schemes. Here the idea was to educate the public on the workings of the legal system in order to increase accessibility (and counter the claim that the system was byzantine and inefficient). Okon realized that having a better,

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analysis, therefore, the value-based approach also generated buy-in from the judiciary, by diffusing normative objections, while ultimately being consonant with treating adjudication no different from any other government-provided bureaucratic service.

131. *Id.*

132. Interview with Zion Caspi, *supra* note 22; Interview with Boaz Okon, *supra* note 33.

133. Interview with Boaz Okon, *supra* note 33.

more rational understanding of the legal process could enable superior management of the judiciary; it could allow for better-informed research into the impact of possible legal reforms on the judiciary.

Another inventive scheme that was particularly dear in the Barak-Okon mindset was that of creating a "central data clearinghouse." Under this scheme, all cases, wherever submitted, would arrive to one hub from which they would be distributed to various judges according to their caseload and availability, and where they would also be supervised and monitored. This scheme was said to allow for a panoramic viewpoint from which "traffic jams" and other problems would be located and centrally dealt with.

Okon sought to translate these general principles and schemes into core operating principles, which would then underlie the design of Legal-Net. Our findings reveal that from the very early stages of the Legal-Net design it was explicitly intended to have considerable and effective managerial capacities, so it would control the different phases of the judicial process while monitoring judges' actions and performance.[134] It was also understood that such governance was a normative exercise.

At the same time, the lessons of the grand tender were still fresh: Okon, being a District Court judge himself (and a highly esteemed one, both in terms of his legal knowledge and in managerial skills), knew that a policy to use technology in order to *force* judges in one way or another would be highly costly, and likely to fail.[135] Nudging, by way of harnessing judicial reputation, seemed much more effective. Moreover, Okon very much approved of the modular approach, even if that entailed that not all features of the system would have been operational at once, provided the modules were developed with an overarching purpose (and normative underpinning) in mind.[136]

But the great attention to values would have likely not gone very far were it not married with the relevant technology. It is safe to say, therefore, that the most significant technological decision taken by Okon (and his IT team) was to introduce a certain technological framework as the core of what later became Legal-Net. That decision allowed for the development of the system to progress and also set, to a considerable extent, its course. In everyday life, there is a tendency to think of programming code as 'neutral' or 'transparent'

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134. *Id.*; Yardeni's First Interview, *supra* note 14.

135. *See* Coffin, *supra* note 73, at 399 ("It is understandable that many judges feel that the basic values that once attracted and sustained their enthusiasm and sense of self-worth are at risk."). Coffin suggests that the whole world of judgment is changing, and that values from the past are in danger in the face of novel technologies. *See id.* It also appears that judges feel threatened by this change and therefore do not welcome it. This observation fits in with Okon's approach. Okon, it seems, knew that imposing a certain *modus operandi* on the judges might be thwarted by their opposition to the whole spirit of change. *See* Interview with Boaz Okon, *supra* note 33; *see also* Interview with Shlomit Levy, *supra* note 22; Yardeni's Second Interview, *supra* note 30.

136. Okon decided that Legal-Net would start operating even before it would be developed fully and that it would be modified along the way, instead of being implemented as a complete and full system. In addition to deciding to go for a flexible design process, Okon also determined that the set of rules programmed into BPM would be altered throughout the designing process. Yardeni's Second Interview, *supra* note 30.

in the sense that what matters is its function, performance, perhaps graphic design, but not necessarily the actual technical language, or software architecture used (and definitely not the politics or values baked into the technical architecture). Law-and-technology scholars have long noted that this is wrong—code matters.[137] The decision to turn to Business Process Management (BPM) is perhaps the clearest case on point, surely in our context. Adopting BPM architecture arguably transformed the way judicial management is approached with, as we will show, some unintended consequences.

IV. THE AGE OF BUSINESS PROCESS MANAGEMENT (BPM)

According to one definition, BPM is

> A method by which a business undergoes inspection of the entire operation of its network to evaluate processes, termed workflow, and to make specific recommendations for improved efficiency and productivity as a way to optimize operations. Using the information storage capacity of software to understand how a business produces a good or service, BPM is a business template for grasping the big picture of a network operation."[138]

It follows that BPM technology, then, is an architecture (software, hardware, network) that implements this method so as to efficiently monitor, implement, and analyze complex production processes.

Several elements in BPM's definition merit our attention. BPM is commonly used in the private corporate and industrial world as a tool for efficient management of private enterprises. It is a tool intended to inspect and supervise, for example, the production processes of complex assembly lines.[139] Further, as a management tool, BPM is meant to improve business processes by facilitating the "translation" of overall business and production processes

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137. Lessig, *supra* note 122, at 3–4. Lessig argues that, while some may think that "policymaking from this perspective is simply the process of tuning legal code," from the perspective of those attuned to the technological dimension, "[p]olicymaking cannot function focused on legal code alone. *Id*. "Policymaking instead requires a consideration of the interaction between this legal code and the architecture or technology within which this code functions." *Id*. For a more general discussion of the regulatory function of code see LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE (2000).

138. Joseph Dewey, *Business Process Management*, SCRIBD, https://www.scribd.com/document/333271935/Business-Process-Management (last visited Mar. 20, 2020). Another possible definition is, "[BPM] is a management discipline focused on using business process as significant contributor to achieving an organization's objectives through the improvement, ongoing performance management and governance of essential business process." John Jeston, *The Perpetual Question—What Is Business Process Mangement?*, BPTRENDS, https://www.bptrends.com/bpt/wp-content/uploads/11-05-2013%20COL-Down%20Under-What%20is%20BPM-John%20Jeston.pdf (last visited Mar. 20, 2020). BPM's core idea, that production processes may be amenable to alternations and improvements, is not new, of course. In fact, it dates back to the early days of the 20th century. *See* HOWARD SMITH & PETER FINGAR, BUSINESS PROCESS MANAGEMENT: THE THIRD WAVE (2003).

139. JOHN JESTON & JOHAN NELIS, BUSINESS PROCESS MANAGEMENT: PRACTICAL GUIDELINES TO SUCCESSFUL IMPLEMENTATION 176, 304 (2d ed. 2006). One of the most famous examples of the use made by BPM in the industrial world was the development of the Toyota Production system (TPS). For the Toyota (as well as the GE) examples, see HOWARD SMITH & PETER FINGAR, *supra* note 138, at 41–42.

into a graphic display (or a numerical output) with a view to achieving better coordination between the various segments of a manufacturing or assembling plant (or within similar enterprises that produce goods in various locations or stages while relying on different processes and professional languages). BPM is therefore designed to establish better measurements for productivity and overall efficiency across production systems and is said to be conducive to more rational analysis of the advantages and disadvantages of the different stages of active production processes in attaining optimization.[140]

For its operation, BPM requires first that the production process be meticulously fragmented to its various components, so that each component is defined in terms of the actions entailed therein, their expected timing, and goals. Additionally, each such component is placed in relation to other components: the possible sequencing of the various components must be identified. More specifically, designing and implementing a BPM engine entails breaking down the processes to their segments, breaking down the segments into the minute steps that much be taken within each segment, and then plotting the steps that follow (or may follow) a previous step. Furthermore, the direction of the workflow must be carefully detailed (for example, can a stage or a segment be repeated? And if so, under which circumstances?). Expected durations of each stage must also be set. Furthermore, for each segment, failure indicators have to be established for the system to generate relevant alerts. The resulting artifact is a detailed map of the various paths and permutations of the different processes that lead from point A—the beginning of the production—to point Z—its conclusion, which also may be the starting point of another production process. For the BPM to take advantage of its potential, it should include yet another dimension: robust data collection and analysis of existing business processes, as actually conducted, in order to provide measures for success (or lack thereof), potentially on all levels (from the single worker to the entire unit).[141]

The decision to adopt the BPM method and architecture emerged at a conclusion of two routes. The first was the post-tender consultation, noted above.[142] The second was a survey done by the IT team regarding the technologies which might be suitable for building a new management system, one module at time. As for the first, following the tender fiasco and as part of the shift from a grand-design to the modular approach, Okon and the design

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140. *See* Paul Harmon, *Once More: Lean, the Toyota Production System, Six Sigma, and BPM,* BUS. PROCESS TRENDS, http://www.bptrends.com/publicationfiles/advisor20121023.pdf (last visited Mar. 20, 2020). BPM is also employed in the public sector in Germany, Switzerland, and Austria. *See* Norbert Ahrend, Opportunities and Limitations of BPM Initiatives in Public Administrations Across Levels and Institutions (Mar. 28, 2014) (unpublished Ph.D. dissertation, Humboldt University) (on file with the Humboldt University Library).

141. *See* SMITH & FINGAR, *supra* note 138, at 245–50.

142. *See supra* Subpart III.A.

team sought the advice of judges and administrative staff,[143] inviting them not only to articulate their needs but also to join those developing the technological system, if only for a day or two.[144] On those occasions, judges shared their perspectives regarding the issues that concerned them the most about the evolving system.[145] They also addressed specifics, for instance, referring to parts of the criminal process that could benefit from better technological assistance or reflecting on how a segment of civil procedure worked, and therefore what should be accommodated by the system. Judges' participation in the development process contributed significantly to the mapping of typical judicial proceedings and their soft points, as well as their breaking down to consecutive stages.

While this process was advancing, the IT team was seeking a solution for an architecture that would support and structure judicial management. They discovered the BPM engines and started to consider their advantages and disadvantages. It was clear that any technical solution, and in particular the BPM solution, would require a granular parsing of the legal processes in Israel, including the scrupulous mapping of typical judicial proceedings and their careful breaking down into distinct sequential stages. Okon led this Herculean endeavor, which consumed hundreds of hours of his time.[146] Working from an office in the software company that worked on Legal-Net, Okon canvassed the entire landscape of civil processes in Israel and the main criminal ones. He thought about typical and atypical eventualities, and the subtasks within each stage.[147] Most importantly, at the end of this hard labor, forty-eight modular Lego-like bricks, representing the different stages of various typical judicial processes, were identified. These procedural segments, and the modular thinking underlying the research from which they emerged, are the foundation of Legal-Net.

In the course of the process whereby the "bricks" (or modules) were identified, the Okon-led technical team became more familiar with a BPM engine. The fit between BPM and the bricks-methodology was apparent, and a decision was made to adopt the BPM architecture and a particular BPM software, and to convert the forty-eight basic bricks into production processes.[148] Attempts were made to integrate the administrative needs of the secretariats, as expressed during the interim phase detailed above. Okon was also careful to consult with a select few judges in various courts to ensure that

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143. Interview with Shlomit Levy, *supra* note 22 (crediting Okon with the initiative to engage in these discussions).

144. Interview with Shlomit Levy, *supra* note 22; Yardeni's Second Interview, *supra* note 30. This was, of course, completely in accordance with the Integrative Perspective, discussed *supra* Subpart III.C.

145. They were chosen by Okon according to their various areas of practice. Interview with Boaz Okon, *supra* note 33; Yardeni's Second Interview, *supra* note 30.

146. Yardeni's Second Interview, *supra* note 30.

147. *See id.* (detailing Okon's detrimental contribution to the initiative); *see also* Interview with Shlomit Levy, *supra* note 22; Interview with Boaz Okon, *supra* note 33.

148. Interview with Boaz Okon, *supra* note 33; Yardeni's Second Interview, *supra* note 30.

he did not miss procedural junctures, although it should be stressed that the actual process of integrating civil and criminal procedures within the BPM technology did not involve a more general consultation with judges, as this was deemed impractical.

The decision to place BPM at the heart of Legal-Net introduced myriad policy questions that had to be addressed, given the nature of BPM. They had to consider such questions as: To whom should judges report? (The practice is that, in principle, judges may be required to report to the president of the court, the Chief Justice, and/or the Administration.) Who could be privy to what information regarding judges' performance? (As further indicated below, almost any member of the judiciary had, initially, plenary access to information, save for issues requiring confidentiality. This was later changed at the request of judges, allowing them to see only the status of colleagues' cases.) What type of nudging or red flags might judges encounter regarding their pending tasks? (The underlying principle being that judges may ignore any flag and use their judgment to manage the case, yet flags are reported, and their records maintained.) Sequencing rules, too, were developed with respect to the various segments of each process and the ability to repeat a certain segment.

As designed by Okon and his team, BPM became a comprehensive and truly penetrating architecture. Upon launching a case within Legal-Net, the BPM is engaged. It manages the entire process with respect to all judges at any court (save for the Supreme Court), and with respect to all judicial decisions. Since the basic "bricks" of the legal processes are factored in, the system knows what the next steps should be, as it is awaiting judicial response (or, later, response by parties to judicial interim decisions). Since judges' schedules are managed by Legal-Net, the system knows when the next step is due and, thus, if no further step is scheduled, that is also noted.[149] Moreover, based on the designers' estimates and legislative mandates, a "time duration" unit was defined for each stage of the judicial process as a rule of thumb. As each stage of the judicial process is monitored by the BPM, to the extent a case does not follow the flow pre-configured in the BPM, or to the extent a deadline is missed, or a task left unattended, various alerts are generated dependent on the severity of the infraction. In general, the Legal-Net BPM component has three levels of alerts designed to inform Legal-Net users of judges' deviation from prescribed guidelines.[150] The alert system is directed both at the "deviant"

149. Orna Rabinovich-Einy, *Reflecting on ODR: The Israeli Example*, *in* 1 EXPANDING THE HORIZONS OF ODR: PROCEEDINGS OF THE 5TH INTERNATIONAL WORKSHOP ON ONLINE DISPUTE RESOLUTION 13, 15 (Pompeu Casanovas et al. eds., 2008), http://ceur-ws.org/Vol-430/Paper3.pdf ("In the design of the system, an arduous process of mapping the various types of proceedings involved was performed in order to identify, step-by-step, the different stages that each of these processes is comprised of.").

150. In the initial level of alert, once a fixed time for the completion of a certain stage of trial expired, automatic notification would appear on the judge's Legal-Net workspace. The alert would escalate once a month passed since the initial alert had been issued and the assignment had not yet been completed. In that case, an alert would also appear in the workspace of the person who was administratively in charge of the

judge (whom the system notifies of her non-compliance) as well as her seniors (namely, the president or vice presidents of courts and the Administration). It thus serves both as a self-monitoring tool[151] and a supervising tool.[152]

In short, Legal-Net is able to minutely analyze judges' performance along the judicial processes' flow-chart and alert any relevant stakeholder (the judge, her supervisor, and even litigants, if this option is enabled) of any nonconformity with its pre-ordained standards. At the same time, the system is capable of generating an overall assessment of possible clogs in the workflow, and it provides a tool for assessing increase or decrease in relative workload of judges, divisions, and courts. No wonder that it was immediately recognized by Okon and the design team that BPM could be an instrument for the amalgamation and generation of immense information, such as judges' workload and judicial processes' duration, broken down into proceedings' separate stages.

Moreover, it was soon realized that adopting BPM would enable the judiciary's chiefs to take the regulation of judges' performance to a completely new level, one that resembles the (in)famous panopticon.[153] Each judge, judicial division, court, or the entire judiciary may become unprecedentedly

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specific judge's performance, that is, usually the president of court. According to Yardeni, the Legal-Net team made hidden this level of inner escalation in the face of judges' opposition thereto. Yardeni's Second Interview, *supra* note 30. The third level of alerts made it possible for senior judges (and not just those who "triggered" the alert) to view all of the assignments of their administratively-subordinate judges and secretariats. To the best of our knowledge, the third level of alert was never used. *See* Yardeni's second interview, *supra* note 30; *see also* Rabinovich-Einy, *supra* note 6, at 21–22.

151. It is therefore apt to consider this feature of Legal-Net as incorporating a powerful means of reflexive regulation in its design. For a discussion on "reflexive regulation," see Orly Lobel, *The Renew Deal: The Fall of Regulation and the Rise of Governance in Contemporary Legal Thought*, 89 MINN. L. REV. 342, 404–07 (2004); Eric W. Orts, *Reflexive Environmental Law*, 89 NW. U. L. REV. 1227, 1275–87 (1995); Sagy, *supra* note 119, at 463–67. It is notable that before the creation of Legal-Net, under Arbel's "Clouds" system, deadlines could be delayed and altered by judges—the same judges subject to these deadlines—simply by setting new "reminders." BPM is said to have dealt with this loophole. According to Yardeni, Okon took great pains to make it much more difficult for judges to manipulate Legal-Net. Yardeni's Second Interview, *supra* note 30. Thus, for example, cases could only "move forward" in the system's flowchart in the sense that a judge could not manipulate the system by sending the case a step backwards in the litigation process, for example by opening another window for testimonies once this phase of the litigation had concluded. This is a major concern for judges who may be quite creative when applying the rules of civil procedure.

152. For instance, judges are allowed to "own" up to a certain number of proceedings that are "in limbo" before the system begins to issue alerts, namely, cases where, although they are in the summary stage, neither dates for future court-hearings are set, nor verdict is pending. This feature is part of an on-going attempt to deal with case backlog in the pretrial stage. *See* Yardeni's First Interview, *supra* note 14.

153. The panopticon is a (penal) institution designed by Jeremy Bentham so as to allow a single watchman to observe all inhabitants (inmates) without those subject to the observation knowing whether at any particular point in time they are being observed; they, therefore, have to assume a constant gaze. *See* 4 JEREMY BENTHAM, THE WORKS OF JEREMY BENTHAM (1843). This idea has been adopted as a metaphor to address a state of constant surveillance of the many by the few (without the few knowing whether they are actively monitored at any given time). *See, e.g.*, Joshua Fairfield, *Escape Into the Panopticon: Virtual Worlds and the Surveillance Society*, 118 YALE L.J. 131, 131–32 (2009); *see also* Margo Huxley, *Geographies of Governmentality*, *in* SPACE, KNOWLEDGE AND POWER: FOUCAULT AND GEOGRAPHY 185 (Jeremy W. Crampton & Stuart Elden eds., 2007); Nigel Thrift, *Overcome by Space: Reworking Foucault*, *in* SPACE, KNOWLEDGE AND POWER, *supra*, at 53.

transparent to the heads of the judicial system (or, in fact, to any node within the network, if such a decision is taken). This gaze allows those privy to the data to micromanage each and every phase of the judicial process.[154] But it also means that each of the judges may be micromanaged.[155] It is worth noting that Legal-Net also tightens the grip over courts' secretariats, as the heads of the system – currently presidents or vice-presidents of courts – are able to monitor their court's secretariats assignments basket, ascertain its precise content, and take organizational decisions accordingly.

As hinted above, Legal-Net does not suffice itself with vertical-top-down transparency. Rather, the BPM architecture as developed and applied in Legal-Net permits multi-directional transparency. Thus, Legal-Net may easily open the door to a much more robust peer-review. With its wealth of knowledge about each judge, and given the detailed reports Legal-Net produces for the use of the judiciary's doyens, the question of the immediacy and level of information one judge may have regarding her peers hinges solely on the access-to-information policy adopted, as the technology itself is designed to provide full access. The level of transparency allowed by Legal-Net corresponds with Okon's and Barak's target of achieving full, across-the-board internal and external visibility on the national level.[156] However, it was decided that such a level of statistical transparency, namely the ability to generate detailed statistical reports (and analytics), would not be available to all judges on the individual-judge level (save their own), but only on a court-level basis (or a division-level basis).[157] Still, as mentioned, the information is available in Legal-Net;[158] it is even subject to freedom of information requests.[159] Moreover, even if detailed statistics are available only to the heads of the system, every judge is able to view her colleagues' total number of cases,[160]

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154. Rabinovich-Einy regards this element of a "learning system" as a positive, since it is conducive to efficacy. However, we believe the monitoring element should also be taken into account. *See* Rabinovich-Einy, *supra* note 6, at 5.

155. *See* Interview with Shlomit Levy, *supra* note 22; Yardeni's Second Interview, *supra* note 30.

156. According to Okon, Barak thought the judiciary should be transparent to all judges and even to the general public. Interview with Boaz Okon, *supra* note 33; *see also* Yardeni's first interview, *supra* note 14.

157. *See* Yardeni's Second Interview, *supra* note 30.

158. It seems that in reality, however, it is unlikely that judges (not carrying any managerial functions) are savvy enough to know how to mine the system in search of complex information.

159. Such information requests are generally based on The Freedom of Information Law. Freedom of Information Law, 5758-1998 (1998). A notable case in this regard is AdminA 3908/11 Courts Admin. v. TheMarker—HaAretz Newspaper Ltd. Isr. L. Rep. 307 (2012) (Isr.). In that case, *TheMarker* newspaper submitted a Freedom of Information request to the Administration of Courts to receive information indicating the number of open cases then under consideration by the Supreme Court and the District Courts, the amount of time that had elapsed since each case had been filed, and the names of the judges hearing the cases. *Id.* at 314. The State argued that revealing judges' names would negatively impact their work and decrease public confidence in the judiciary. *Id.* at 312–13. The Supreme Court held that in this case the public interest in transparency outweighed the other concerns, reasoning that since the judiciary was one of the branches of government having the great impact on individuals, there was a clear public interest in publicizing the requested information. *Id.* at 365.

160. According to Yardeni, such viewing is documented by the system. *See* Yardeni's Second Interview, *supra* note 30.

the status thereof, and therefore can assess (as a rule of thumb) the expediency with which judges handle cases. More importantly, each judge can evaluate, in any given time, how she or he is performing in comparison to other judges based on the number of pending tasks or cases.

Consequently, it may very well be argued that while courts' transparency stands to enhance accountability, it may also serve to nudge towards conformity, thereby raising a possible tension with judicial independence.[161] To illustrate, a procrastinating judge may be subject to direct or indirect pressures, either by someone within the system—an administrator, a senior judge, even by a peer—or by litigants who may seek to discredit that judge publicly. But an efficient judge, facing a complex case—or a case which she thinks warrants careful consideration—may be similarly pressured to conform. While some delays may be explained, a judge may be put on the defensive if it is perceived she is taking too long to process a case compared to the pace of others or in comparison to a "thin" understanding of productivity that crudely measures the rate of docket clearance.[162] It is not inconceivable that judges may push parties to settle (especially in complex cases, or if the judge is simultaneously processing many simple cases) even when she is not convinced this is the best way to resolve the case. More generally, she may make procedural decisions under pressure, against her best professional judgment, to the extent her assessment of the most adequate procedural disposition of the case conflicts with her assessment of what that disposition may look like when evaluated only through the single lens of relative efficiency and in relation to "the standard." At the very least, the judge would be facing pressures to demonstrate greater productivity, even if such productivity is skewed because it is one-dimensional.[163]

At the same time, Legal-Net could be understood as enabling a "democratizing" effect.[164] As noted, Legal-Net generates multi-dimensional organizational vectors. While it prioritizes the top-down, hierarchical vector, it also enhances the horizontal or even bottom-up gaze, as judges are privy to

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161. *See* Christof Demont-Heinrich, When the Panopticon Goes Online: Charting the Geography of Power, Control and Surveillance in Cyberspace 22 (July 26, 2002), http://www.portalcomunicacion.com/bcn2002/n_eng/programme/prog_ind/papers/0_arribats_peremail/abans_07_2002/pdf/demontheinrich.pdf (arguing that over-transparency may undermine judges' independence, "Individuals internalize the panopticized norms and perform them as if someone was surveilling their performance from inside the Panopticon.").

162. For a critical analysis of such "thin" conception of productivity, see Hon. William G. Young & Jordan M. Singer, *Bench Presence: Toward a More Complete Model of Federal District Court Productivity*, 118 PENN ST. L. REV. 55 (developing a set of metrics that account for judicial accuracy and fairness, in addition to speed of resolution measures).

163. For evidence of how a change in performance metrics led to measurable changes in U.S. federal court judicial behavior, see Young & Singer, *supra* note 162, at 96 ("It is true that the current focus on efficiency has skewed judicial activity in demonstrable ways, for example by vastly inflating the number of pending motions decided in two weeks prior to semi-annual CJRA [Civil Justice Reform Act of 1990] deadlines.").

164. *See* Russell Spears & Martin Lea, *Panacea or Panopticon? The Hidden Power in Computer-Mediated Communication*, 21 COMM. RES. 427, 427 (1994) ("CMC [computer-mediated communication] tends to equalize status, decentralize and democratize decision making.").

internal managerial data. In so doing, it may, in the mid-term or long-term, undermine internal hierarchical forces. By providing judges with abundant (comparative) information on the production process regarding judges from higher, lower, and comparable courts, judges may challenge managerial policies and may raise competing organizational demands.

Yet, to fully appreciate Legal-Net's revolution, it is necessary to go beyond issues concerning its design. The technological and social implications of innovation become apparent only once the actual implementation on the ground is considered. It is at this stage that technology and the various dimensions of culture – organizational, professional, popular – interact, the actual impact of new designs become clear, and some unintended consequences are revealed.

V. The Judiciary's Reaction—Legal-Net Implementation and Implications

After hearing the needs of the various segments of the system, and after the countless hours Okon (and the select few judges) spent in mapping the various legal processes, the design team completed the staggering task of integrating the processes into the BPM and began introducing Legal-Net to judges at large. In May 2004, the team displayed its design to Chief Justice Barak and, in early 2005, a series of "road shows" took place in the various courts. The objective was to get judges' feedback and to preempt dissent and opposition that might be percolating among judges—a lesson learned from past attempts and innovations.[165]

Early on, it became apparent that Legal-Net would require extensive training for judges. Some judges—primarily veterans set in their ways or less acquainted with new technologies, although clearly many veterans did not fall into this category—would find the transition difficult.[166] The hope was that judges would welcome the new features the system promised, such as the ability to work from home, to access legal databases, and to greatly improve warehousing and scheduling.

But surprisingly, Legal-Net was met with initial backlash and hostility from large swaths of the judiciary—young and old alike.[167] Part of the blame

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165. Interview with Boaz Okon, *supra* note 33; Yardeni, Second Interview, *supra* note 30.

166. A similar approach can be found at Coffin, *supra* note 73, at 399. Likewise, the challenge and the process of individual adult learning was characterized by Smith and Fingar as a "painful experience" since it changes long-established work patterns. Smith & Fingar, *supra* note 138, at 166.

167. In sharp contrast to the lack of cooperation by judges and secretariats in the lower courts, the computation process of the Supreme Court process went quite smoothly. *See supra* note 60 and accompanying text. It seems that the cooperation of Judge Michal Agmon-Gonen, who served at that time as the Registrar of the Supreme Court (and as a Judge at the Magistrate Court in Jerusalem) contributed to the success of the Supreme Court's computation effort. Her full endorsement made a difference, since as the Registrar of the Supreme Court, Agmon-Gonen was in close contact both with the Court's secretariat and the Chief Justice. Presumably, her engagement was a sign of Chief Justice Aharon Barak's support. It should be noted, however, that the system at the Supreme Court level is not all-encompassing, as justices do not log on to the system to

for the harsher-than-expected opposition lied, it appears, in the fact that only a small number of judges, secretarial staff, and administration personnel took an operational part in design of Legal-Net. Recall that even though Legal-Net designers undertook a rigorous analysis of the key components of the legal system to identify its constituent parts, only a select number of judges played an active role in this process and, despite the outreach for consultation, the users' community at large was not privy to the technical details throughout the design stages. That was also true in regard to the political elites of the time: Justice Ministers and the Knesset's Constitution, Law and Justice Committee played a marginal role, if any, in the construction of Legal-Net.

Just as damaging were rumors, which began to spread as Legal-Net took its first steps, that the system would upend the very way courts ran. The courts' typists' workers union went on a strike, following a scare that the advent of Legal-Net spelled their massive dismissal.[168]

To make matters worse, the system went on-air when it was far from fully functional. In fact, the launch was nearly disastrous. The president of the court selected for the pilot had to sit at the secretariat and back the system manually.[169] Fortunately, she did not belong to the skeptics' camp but was rather committed to the success of the system. In addition, funds allocated to the training of judges in the ways of Legal-Net were fast exhausted.[170] Legal-Net was proving to be less judge-friendly than assumed. However, going back was not an option because the previous system could not be further maintained. Consequently, after an eleven-week run, Legal-Net rolled in, despite not yet being bug-free.[171]

One major source of the commotion accompanying Legal-Net's deployment was already alluded to. It was the realization that technology brings with it a language, patterns of interaction, and goods it seeks to promote. The introduction of the BPM architecture, accompanying jargon, and ways of thinking all challenged established conceptions of the judicial function. With the advent of the new techno-managerial design, gone were the days when the ethos of the judicial role was encapsulated in the call for judges to seek justice under the law in the particular case before them. The focal point for the optimization of the judicial compass, in the Legal-Net era, slid from the litigants before the courts to the litigants at large. Embedded in the novel digitized system is the conceptualization that the judicial process is a service provided to the public, which relies, to a large extent, on the integration of the various components of the production line, and is therefore measured at the system-level (provided no clear miscarriages of justice occur in particular

write their judgements, and it is not designed to offer each judge a view of all the pending cases other judges face.

168. *See* Interview with Shlomit Levy, *supra* note 22.
169. *See* Interview with Boaz Okon, *supra* note 33.
170. *See* Interview with Shlomit Levy, *supra* note 22.
171. *See* Interview with Boaz Okon, *supra* note 33.

cases). The arrival of BPM was thus held to epitomize a transformation from a consciousness of retail, where the judicial attention was supposed to be fully devoted to the quality of the resolution of individual cases, to an attitude of wholesale, where the judicial business is contextualized as a manufacturing process that is evaluated for its overall success in applying the law to a large number of cases as smoothly as possible. This process should therefore be managed with the same technological tools (and the same managerial language and measures) as other mass-production processes.[172]

More specifically, Legal-Net heralded a tectonic shift in the judiciary's work culture and work patterns.[173] This shift reflected back on the individual judge, who now found herself working in the production line. Until the introduction of BPM, ideally, the judge thought she would be valued by the quality of her (tailor-made) judgments. Now, Legal-Net offers templates for decisions in run-of-the-mill cases. The BPM logic is not only about the quality in particular cases; it is about streamlining the process (without getting too many "rejects"). According to the new ethos, the judge is in the business of managing and efficiently processing conflicts rather than necessarily spending a long time pondering on the Solomonic task of making normative rulings about what the law is and its nuanced application to the particular case before her.[174] Consequently, she is nudged to approximate the parameters of the judicial production line, at least in terms of the procedural handling of the case, as preordained by the Administration and configured into the Legal-Net infrastructure. This is not to say that judges do not care about justice in individual cases anymore, nor that in previous times managerial pressures did not play a role in procedural decisions. But we argue that technology, and the technological culture that surrounds it, brought with it a change in kind, and a different structure of incentives and organizational culture.[175]

A tension thus had emerged between the BPM's features and the normative outlook underlying the Barak-Okon approach. Simply put, the BPM technology perfectly fit several—but certainly not all— of the normative and operational principles that had been originally envisaged. Significantly, it was well suited to rationalizing the judicial process by effectively segmenting it. Similarly, the BPM technology enabled and enhanced the transparency and accountability sought by Barak and Okon. Nonetheless, BPM was clearly not without its difficulties. As suggested, not all of the said normative and

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172. This corresponds with the shifts to managerial justice, wherein judges themselves have to manage, rather than simply resolve, disputes. *See* Malcolm M. Feeley & Jonathan Simon, *The New Penology: Notes on the Emerging Strategy of Corrections and Its Implications*, 30 CRIMINOLOGY 449, 452, 455 (1992); Judith Resnik, *Managerial Judges*, 96 HARV. L. REV. 374, 378 (1982); However, the focus here is not on judges as managers of policy-ridden disputes, but on adjudication itself as reconceived as the provision of a service, just like any other service, and therefore subject to similar managerial considerations.

173. *See* Rabinovich-Einy, *supra* note 6, at 43–44.

174. *See* Agmon-Gonen *supra* note 4 (arguing that judges now may face pressures from the administration to streamline the process, at the expense of justice in individual cases).

175. S*ee* Rabinovich-Einy *supra* note 6, at 5 ("A more efficient system could increase access to justice.").

operational principles fully materialized (at least at first). More importantly, it soon became clear that BPM carried some unintended normative consequences. Whereas it provided a rational basis for justifying distributive decisions among judges (or courts) – how many cases are assigned to whom, how many resources should be allocated to which department – it also reconfigured the underlying premise of the project. No longer necessarily seeking the best way to implement the individual right of litigants to access a court of law to plead their case, the project now concerned the management of a bureaucratic, industrialized public service where scarce public resources have to be spread to cover the most parts efficiently.

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Today, Legal-Net is fully deployed throughout the Israeli judiciary (excluding the Supreme Court) and the opposition has significantly waned.[176] Tendencies to complain about it—still common among judges— notwithstanding, as these lines are written it seems no one can imagine the Israeli judiciary operating without Legal-Net. Following the retirement of Director Okon,[177] Judge Moshe Gal took the helm, bringing with him a resolute commitment to the incorporation of professional management techniques. After scaling back deployment of Legal-Net in order to debug it, he turned his attention to implementation, which included investing considerable resources in training and support. Some software modifications were also introduced in order to incorporate feedback from various stakeholders, including secretariats and judges.[178] At the same time, the Chief Justice and the Director began realizing the managerial potential embedded in Legal-Net. Reports were refined, statistics calibrated, and internal guidelines regarding judicial management written.[179] The ongoing process of improvement and development continues, primarily regarding fine-tuning the BPM processes in criminal law and streamlining the logs and inputs required by the users in order to improve the usefulness of the statistics.[180]

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176. Since the main oppositional punch against Legal-Net was thrust when the system was launched, our interviews reveal that direct opposition dissipated as the system was rolled-in, bugs were fixed, and modifications per the request of judges were included. *See* Interview with Shlomit Levy, *supra* note 22; Yardeni's Second Interview, *supra* note 30.

177. Okon stepped down on the July 31, 2006. *See* Boaz Okon, ISR. JUD. AUTHORITY, http://judgescv.court.gov.il/0F8C84BA-645E-E811-8105-0050568A6817 (Heb.) (last visited Mar. 20, 2020).

178. *See* Interview with Moshe Gal, *supra* note 66; Levy's Interview, *supra* note 26.

179. *See* Interview with Shlomit Levy, *supra* note 22.

180. As part of implementing the system, greater flexibility was allowed for the secretariats in classifying the various legal proceedings and legal outcomes. The rationale was that some categories are not fully clear, and it is better to choose one classification and move on than to spend time to investigate the difference between one category and another in classifying the motion, as that would place a burden on the administrative staff and hinder implementation. Yet, as the reach and depth of the system expanded, it became even more important that such classifications be accurate and precise, in order to ensure reliability of the data. Today it is still advisable to corroborate the older data stored in the system with other sources. *See* Keren Weinshall-Margel et al., יצירת מדד משקלות תיקים להערכת העומס השיפוטי בישראל [*Case-Weights for The Assessment of Judicial Workloads in Israel*], 44 MISHPATIM 769 (2015) (Heb.). In constructing this index, the authors came

Beyond fine-tuning the existing modules, the IT team is now working in coordination with the Judicial Research Unit (an arm of the Administration of Courts) and the Chief Justice on the next phase: developing more sophisticated measures with which to assess caseload. These tools, once fully developed, would serve as a calibrated weight for the judicial workload. The idea originally was to assess how "expensive" each judicial proceeding is in terms of system resources (primarily judicial time) so that budgetary discussions would be data-driven, allocation decisions rationalized, and debates about procedural reforms informed. It has evolved, however, to also address the expectations from individual judges. Once the weights per set of motions are calibrated, judges in different instances will be informed what is expected of them in a given time segment, as part of the overall production line.[181]

Yet, all along, judges keep looking for creative ways to resist the full digitization of the judicial process.[182] Our interviews indicate that to this day many judges prefer to print some, if not most, trial materials. Furthermore, as a matter of course, lawyers continue to submit physical forms in addition to the digital submissions, if only to be on the safe side. The number of printers and toners has increased in recent years, while the demand for judicial storage space mushrooms.[183] In the course of our interviews, we were told that less than a sixth of all judges (out of a total of about 800) work solely with Legal-Net electronic files. The rest use Legal-Net partially, and still carry out some functions manually in tandem with Legal-Net.[184] As indicated above, the sources of this resistance may be found in judges' aversion to novelties.[185] Perhaps the attempt to fully digitize the legal process meets resistance also because the technology— primarily the hardware—is not yet fully mature; reading materials on a computer screen or an ordinary tablet may seem less convenient compared to reading printed materials. We cannot, however, rule out that the reason behind the resistance at least in part relates to the discomfort with the transformation of the judicial role embedded in the new technology.

CONCLUSION: LEGAL-NET'S REVOLUTION

The development of Legal-Net, the online digital system for case management, is a window to the relationship between regulation, technology,

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to the conclusion that they could not rely solely on the data on Legal-Net, and thus corroborated the data via other methodologies.

181. Interview with Keren Weinshall-Margel, *supra* note 22.

182. *See* Fred Galves, *Where the Not-So-Wild Things Are: Computers in the Courtroom, the Federal Rules of Evidence and the Need for Institutional Reform and More Judicial Acceptance,* 13 HARV. J.L. & TECH. 161, 169–73 (2000) (showing similar patterns of resistance in the United States).

183. *See* Interview with Shlomit Levy, *supra* note 22.

184. Nicknamed the "Ezroni file," namely a hard copy that is printed in order to assist (in Hebrew, "ezer") the judge so that she does not have to scroll endlessly, restricted to limited screen size.

185. As was argued by Coffin, *supra* note 73, at 402 ("[T]here is a need for human judgment in determining when technology serves the judicial process and when it begins to dominate.").

and the judicial function. This Article unearthed the development process that led to the adoption of the system and revealed the four approaches to technology as a regulative tool: (1) the functional approach (technology is but a necessary tool to address pressures on critical infrastructure emanating from mass demand); (2) the command-and-control approach (technology controls the architecture of bureaucracy, and should be used to channel the exercise of state power by creating rigid rules of sequential do's and don'ts); (3) the collaborative, integrative approach (technology is a platform for joint decision making, and its development is an opportunity to develop an ethos of integration and shared organizational identity around a joint mission); and (4) the normative, "nudging" approach (technology is a tool for implementing values and normative choices, and its design should reflect these choices and encourage those subject to the technology to adhere to these values).

More broadly, the history of the development of Legal-Net is an important chapter in the accelerated evolution of technology at the turn of the millennia, as different players—private and public—sought to redesign processes of communication, information-gathering, knowledge-production, and organizational management, and in so doing transformed social practices, societal roles, and, to an extent, conceptions of subjects ("data-subjects") and values.[186]

This Article thus corresponds with literature on theories of regulation by documenting a shift from command-and-control strategies to regulation-through-information approaches, influenced by managerial considerations and thus sensitive to actual performances.[187] This is a unique setting to examine these questions, as the regulated "industry" is the judiciary—an institution that is necessarily associated with being subject to such regulation. Furthermore, the unique type of regulation chosen, regulation through information, is particularly interesting. Intertwined are elements of self-regulation (judges are encouraged to behave according to certain expectations, generated by their peers, the professional community, and their superiors), as communicated by way of relative ordering of judges' productivity. It is also interesting as it provides information with respect to one measure (such as efficiency) but not necessarily with respect to other measures (such as quality, or justice at the retail level).

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186. For accounts of the contributions of other key players, see, for example, STEVEN LEVY, IN THE PLEX: HOW GOOGLE THINKS, WORKS AND SHAPES OUR LIVES (2011) (showing how Google employees brought certain values to their workforce, but were also shaped by the logic of the technology Google developed); *see also* BRIAN MERCHANT, THE ONE DEVICE: THE SECRET HISTORY OF THE IPHONE (2017) (providing an account of how implementation of existing technologies, coupled with innovative developments, usher in a new product that transformed social practices).

187. Stephen D. Sugarman, *Performance-Based Regulation: Enterprise Responsibility for Reducing Death, Injury, and Disease Caused by Consumer Products*, 34 J. HEALTH POL. POL'Y & L. 1035 (2009); Stephen D. Sugarman, Viewing Equal Educational Opportunity Through the Lens of Regulation Theory (unpublished paper presented at the 4th Annual Robert A. Kagan Lecture in Law and Regulation at Berkeley Law, Mar. 14, 2018) (on file with authors).

As this Article demonstrates, the particular application of certain technological architecture brought with it a reconfiguration of the judicial role. The use of the BPM structure nudged judges, likely inadvertently, to think of their role as part of the assembly line, the business of which is to produce dispute settlements under the law.[188] This may be regarded as a positive development, depending on one's normative approach toward the judicial function. But our findings suggest it was not intended. In that sense, the case study is relevant for thinking about "regulation by design."[189] The adoption of Legal-Net is an example of such an approach—it was developed with "regulation by design," as the fourth phase of the development reveals. Yet the lessons Legal-Net carries are two-fold: first, the development is itself a process and therefore subject to uncertainty, thus escaping a predetermined comprehensive design. Legal-Net is not a product of a grand design but rather a product of different decisions taken at different times informed by economic and technological realities, and perception of need and political buy-in. Second, and related, the design finally chosen entailed some unintended normative outcomes (as well as a certain degree of friction, or resistance).[190] These lessons may thus be relevant to other calls for regulation by design (such as calls for better protecting privacy or other values).

Lastly, this case study is important not only because it allows us to better understand the different approaches to the regulative function of technology, and not only because these regulative approaches were applied to the production of justice (and therein directly touched upon the judicial function). It is important because it forces us to consider the relationship (and tension) between transparency and professional autonomy. Conceptually, it is unclear whether this tension can be captured by privacy because it is not clear whether there is expectation of privacy by judges with respect to the exercise of the judicial function. However, substantively, the technological gaze, which entails the ability of managers, peers, the legal community, and the public to track the machination of the "legal assembly line" at a high level of resolution by surveilling judges in their courtrooms and chambers, raises concerns regarding the pressures to conform to aggregative (wholesale) practices which may be in tension with due process at the retail level. It would appear that judges require some social space that preserves a buffer from constant monitoring for their

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188. For a discussion of how artificial intelligence technologies may change how all lawyers view their roles, see McGinnis & Pearce, *supra* note 23, at 3064–65 (describing that artificial intelligence may threaten lawyers "monopoly" on legal knowledge).

189. *See* Deirdre K. Mulligan & Kenneth A. Bamberger, *Saving Governance-by-Design*, 106 Calif. L. Rev. 697, 701 (2018) (holding that "technologists, system designers, advocates, and regulators increasingly seek to use the design of technological systems for the advancement of public policy—to govern 'by design.'").

190. For another example of unintended consequences of the integration of technology into the courtroom, see Fronk, *supra* note 5, at 54. Fronk found that computerized legal research capabilities encouraged more in-depth legal analysis and led to a reduction in conclusory string citations of multiple cases. *Id.* at 54, 76–77.

deliberation to retain the human dimension of judging.[191] This is especially pertinent in light of the ability of the system to generate statistical reports and mine data for more complex forms of analysis in the future.

More abstractly, the emergence of Legal-Net demonstrates the dilemma faced by the developers acting on behalf of the state—wanting to address the need to ensure compliance with productivity while protecting judicial independence. Legal-Net harnesses the "nudge" generated by the incentive to maintain, or augment, judicial reputation (as a form of professional capital).[192] In so doing, Legal-Net also serves as a managerial tool for "rational" distribution of resources, including caseload among judges. This is significant, as managers need to maneuver between the various stakeholders as they seek to streamline the process in an equitable manner. These stakeholders include the individual judges, presidents of courts, and litigating lawyers, but also, for example, the Finance Ministry (which wants to ensure data-driven allocation). The price, however, is also evident: the new technological environment has arguably reconfigured the judicial role towards a more functional understanding of service provision. The "nudging" is a form of social control that is foreign to the notion of justice in an individual case. Moreover, the new ecosystem raises concerns regarding the ability to generate judicial profiles that include propensities to handle a case one way or another, including the probability to be receptive to certain procedural moves. This may bring about deeper concerns for manipulation.

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191. For the dangers associated with computerized courts, see John Morison & Adam Harkens, *Re-engineering Justice? Robot Judges, Computerized Courts and (Semi) Automated Legal Decision-Making*, 39 LEGAL STUD. 618 (2019).

192. *Cf*. NUNO GAROUPA & TOM GINSBURG, JUDICIAL REPUTATION: A COMPARATIVE THEORY (2015) (addressing the various audiences that generate potential reputation). We build upon this understanding of reputation by adding the notion of the "internal gaze"—the gaze of judges as peers within a given system. Fronk argues that as it relates to reputation amongst their peers, the declining cost of judicial citation made judges look for other mechanisms to "differentiate" themselves, including more in-depth analysis. Fronk, *supra* note 5, at 89. We argue that judges' standing in the community in terms of productivity also matters.