

PROJECTION FOR OPTIMIZATION OF ELECTRONIC COURT AS DEVELOPMENT EFFORT OF EXPERT SYSTEM

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Abstract

What is the projection for optimization of information technology systems, especially electronic justice based on the 2010-2035 judicial reform blueprint? and, Does an expert system have the potential to be built and integrated with electronic justice so that it can provide input for judge's judgments? the two aforementioned questions are fundamental questions which in discussion are able to provide an explanation for the public regarding the achievements of the Supreme Court in the development of electronic judicial today and provide input on how electronic justice will be developed in the future so as to be able to improve the quality of judgments. The discussion of this paper is based on the 2010-2035 blueprint and contemporary achievements in the development of electronic judicial. The results of the research indicated that i) MA is developing electronic justice according to the 2010-2035 blueprint and developing the potential E-RIS to become a knowledge database ii) Development of a knowledge database is a major potential in the development of an expert system that may assist to provide input to judge judgments. The input is in accordance with the rules of reasoning, faster and more consistent.

Keywords: e-courts, expert system, knowledge base

Abstrak

Bagaimana proyeksi optimalisasi sistem teknologi informasi, khususnya peradilan elektronik berdasarkan cetak biru pembaruan peradilan 2010-2035? dan Apakah sistem pakar berpotensi dibangun dan diintegrasikan dengan peradilan elektronik sehingga dapat memberikan input bagi putusan hakim? merupakan pertanyaan fundamental yang dalam pembahasannya dapat memberikan penjelasan bagi masyarakat capaian Mahkamah Agung dalam pembangunan peradilan elektronik dewasa ini dan memberikan masukan bagaimana Peradilan elektronik kedepan dikembangkan hingga mampu meningkatkan kualitas putusan, Pembahasan tulisan ini mendasarkan pada cetak biru 2010-2035 dan capaian kontemporer pengembangan peradilan elektronik. Hasil Penelitian menunjukkan i) MA melakukan pengembangan peradilan elektronik sesuai cetak biru 2010-2035 dan mengembangkan potensi E-RIS menjadi sebuah basis data pengetahuan ii) Pengembangan basis data pengetahuan merupakan potensi utama dalam pembangunan sistem pakar yang dapat membantu memberikan input pada putusan hakim. Input tersebut sesuai kaidah penalaran, lebih cepat dan konsisten.

kata kunci: *peradilan elektronik, sistem pakar, basis data pengetahuan;*

Introducton

All over the world, judiciary faced different issues and challenges, including in developing countries, therefore there is a lot of encouragement to reform the judiciary. Information technology is the most popular facility in carrying out judicial reform.¹ There are three main ways that information technology in reshaping the justice system:² First, and the fundamental, namely, technology is able to assist and support the judicial system (supporting technology); Second, technology replaces functions and activities that were previously carried out by humans (technology replacement); Third, technology is able to change the way of judges in working and providing various forms of justices (technological disruption), especially where the process changes significantly in predictive analytic nature which may reshape the adjudicative role.³

In general, the Supreme Court (MA) has updated the information technology system, including the electronic judicial system. The development of the MA's electronic judicial system refers to the updated information technology in the 2010-2035 judicial reform blueprint which is currently up to the migration process of the conventional judicial system to the electronic judicial system. This process should have taken place in the 3rd (three) 5 (five) yearly phase, namely 2021-2025, however, MA was able to realize it 1 (one) year⁴ faster than the predetermined plan. Currently, the implementation of Indonesian electronic judicial shows that technology has become a supporter and has replaced several human activities through web-based applications.

The transformation carried out by the MA was appreciated by many parties, including President Joko Widodo. At the Supreme Court's 2020 annual report session with the theme "Optimizing Sustainable Modern Judiciary" the President appreciated the application of judicial information technology in Indonesia because the implementation of technology in the judicial system was able to significantly improve the performance of the MA; The increase in

cases registered were 295%, trials through e-litigation reached 8,560, the speed of case handled increased, the highest number of cases received or decided in history were able to be carried out without reducing the quality of judgments.⁵

The planning and development of a modern electronic judicial system has the main goal, namely accelerating the process and making it easier for justice seekers to resolve cases. Electronic court allows the judicial process to take place more quickly and measurably with an integrated device system,⁶ but causally the implementation of electronic court should not reduce the quality

¹ Dory Reiling, *Law, Governance, and Development Dissertations: Technology For Justice How Information Technology Can Support Judicial Reform*, Leiden University Press 2009, p. 15-16

² Reform, can also be interpreted as reforming, transforming or renewing.

³ Tania Sourdin, *Judge V Robot? Artificial Intelligence And Judicial Decision-Making*, *UNSW Law Journal*, Volume 41 (4), 2018, p. 1117

⁴ It is undeniable that the Covid-19 pandemic disaster has become a momentum for accelerating the use of technology and information in providing services electronically through electronic trials. For example, through KMA Circular Letter Number 1 of 2020 dated March 23 2020, Point 2 e which encourages justice seekers to take advantage of e-litigation application for trials of civil cases, civil religion and state administration. Letter of the Director General of the State Administrative Court Number 486/Djmt/B/3/2020, dated 30 March 2020 which in essence: Preparatory Examination and Proof can be carried out electronically, Decree of the Director General of the General Court of Justice Number 1693/DJU/SK/HMO 2.3/12/2020 Concerning Standardization of Online Court Facilities and Infrastructure (In Network) in the General Court Environment.

⁵ further can be observed in <https://nasional.kontan.co.id/news/presiden->

jokowi-apresiasi-implementasi-e-court-dan-e-litigation, and
<https://nasional.kompas.com/read/2020/02/26/15143161/jokowi-apresiasi-kecepatan-penanganan-perkara-di-ma>. accessed on Kamis, 18 February 2020, At 09.00 WITA as well as / *live streaming* youtube through youtube canal of Supreme Court, the 2020 Supreme Court Annual Report on 17th February 2021 starting from at 11.00 Wita.

⁶ Slides and submissions delivered by the Chief Justice in a YouTube live stream via the Supreme Court's YouTube channel, on 17 February 2021 which began at 11.00 WITA

of judgments because judgments are the crown of judges and the main product of judiciary that is awaited by justice seekers. Information technology systems that have a negative impact on the quality of judgments are counter-productive with the main goal, but on the other hand, electronic justice systems that are able to provide direct or indirect input in improving the quality of judgments may optimize information technology systems including electronic court in realizing the Supreme Court.

The MA has obtained remarkable achievements in the implementation of electronic court, to move more comprehensively in realizing the vision of the Supreme Indonesian Judicial Bodies in addition to optimizing electronic court by increasing some of its potential, it is also necessary to perform planning and development of an information technology system that has input for quality improvement judge's judgments. Recently, the Chief Justice of the Supreme Court launched the E-RIS (Electronic Research Information System) application which is useful in assisting judges in order to obtain references and rational legal considerations to realize legal unity and comprehensive consistency in judge judgments.⁷ Is it possible that in the future the application can be developed in such a way and integrated with the electronic judicial system to overcome the problem of uncertainty? Because one of the main background of problems of justice is its uncertainty.⁸

Recently, in the development of information technology, it is known as an expert system, a system that seeks to adopt human knowledge into computers so that computers are able to solve problems as experts usually do. The expert system is designed to be able to solve a particular problem by imitating the work of experts.⁹ The development of an expert system in the Indonesian electronic judicial system will bring the judiciary to the stage of technological disruption, where there is a leap or fundamental change in the use of technology in providing input for judge decision making. Is it possible to build an expert system with certain limitations and be

integrated with the electronic judicial system?

Based on the aforementioned background, in order to convey the author's view on optimization of electronic justice in realizing the Supreme Indonesian Judicial Body, the author will discuss 10 projections for optimizing the electronic judicial system, with the following problem formulation; What is the projection for optimization of information technology systems, especially electronic judicial based on the 2010-2035 justice reform blueprint? And Does an expert system have the potential to be built and integrated with electronic court so that it can provide input¹¹ for judge judgments?

⁷ Chief Justice of Supreme Court Launched Aplikasi E-RIS (Electronic Research Information System) virtually, Humas, 22 February 2021
<https://www.mahkamahagung.go.id/id/berita/4527/ketua-mahkamah-agung-luncurkan-aplikasi-> 23 February 2021, at 09.00 wita remark; the existing one is corruption cases, while the other cases will be followed soon.

⁸ Jewel Chanda, *Elektronik Jurnal: A Scientific Judicial Perspective Can Solve Many Hurdles Of Practical Application of AI 'expert System' For Judicial decision Making*, Nirma University Law Journal, Volume- 8, Issue-2, July-2019, p. 1

⁹ Muhammad Dahria, Jurnal SAINTIKOM, Vol 10/No. 3/ September 2011, *Development of Expert System in Building Application*, 2011, p. 1

¹⁰ Projection; one of its meaning in KBBI is an estimate of a future situation or trend based on the existing data (present)
<https://kbbi.web.id/proyeksi>, accessed Thursday 25 February 2021 At 12.00 WITA

¹¹ It shall means: input, <https://kbbi.kemdikbud.go.id/entri/input> accessed on Thursday 25 February 2021 At 13.00 WITA

Discussion.

A. Electronic Court and Information Technology (IT) System for Development of the Quality of Judgments Based on the 2010-2035 Justice Reform Blueprint

1. Planning as a Benchmark.

The target for the implementation of IT in MA are formulated as supporting means to achieve the matters are as follows:

- a. Increase the quality of judgments, namely by providing access to all relevant information from inside and outside the court, including judgments, legal journals, and others;
- b. Increase the court administration system, including access to court activities from outside the building, such as registration, requests for information, and testimony;
- c. Establishment of work process efficiency in the judiciary bodies, namely by reducing manual work and replacing it with computer-based processes;
- d. Establishment of a performance-based organization, namely by using technology as a tool for monitoring and controlling performance;
- e. Establishment of a learning environment within the organization, namely by providing e-learning or remote learning facilities.¹²

The stages for development of Technology in the MA and the judicial bodies underneath it within 25 (twenty-five) years, starting in 2010 were divided into 3 (three) phases, namely:

- a. Stage I, for the first 5 (five) years. The target are optimizing existing IT investments, integration of data and information, as well as preparing regulations and changing work culture in order to welcome the era of IT-based work;
- b. Stage II, for the second 10 (ten) years. The target is to create a consistent information system for all judicial institutions so

as to enable the use of data and information to maintain legal unity and open up opportunities for increased access to court services;

- C. Stage III, for the third 10 (ten) years. The target is the integration of the judicial process with other stakeholders, including other legal enforcers, in the framework of an integrated legal service system (integrated justice system).¹³

Based on the target and stages for development of judiciary technology and information, improving the quality of judge's judgments and improving the court administration system are closely related and are important aspects of planning and development, so that there is a need for integrated information management. If all series of work processes are technology-based and there is already a lot of data stored, a further need that will arise by itself is the need to perform search, grouping and reporting functions as well as statistical analysis. For this reason, a facility that can be used by all users is needed, called an information retrieval and reporting facility. This facility will provide access to the necessary data according to the user's level of authority.¹⁴ Therefore, in infrastructure investment for data recording and management

¹² the 2010-2035 Justice Reform Blueprint, Supreme Court of RI, 2010, p. 64

¹³ the 2010-2035 Justice Reform Blueprint, Supreme Court of RI, 2010, p. 64

¹⁴ the 2010-2035 Justice Reform Blueprint, Supreme Court of RI, 2010, *bid*, p. 68

(data and information management) workflow management, document management, and facility to extract knowledge data collection owned (knowledge management)¹⁵ is very important to be planned and developed.

In order to be able to decide by principle of what is fair and just. Judges are required to stir to new ways of working that are more effective and efficient. In practice, some judges already have the knowledge or skills to decide cases. The judiciary apparatus has developed new ways of working, however, all of this is still in the form of tacit knowledge, something that is known and experienced, but has not been disclosed clearly and completely. Tacit Knowledge is very difficult to transfer to other people because this knowledge is stored in the minds of each individual. This makes knowledge and skills not equally owned by all judges. Therefore, it is important to turn tacit knowledge into explicit knowledge, namely knowledge that can be expressed in words, formulas or formulas that can be seen, heard, felt, and touched. Explicit knowledge can be directly transferred to another person completely through the media of books, reports, newspapers, paintings or other forms of media. If all tacit knowledge can be converted into explicit knowledge, it will be easier for the Supreme Court and the judicial bodies under it to carry out their main tasks and functions (*tupoksi*).¹⁶ Based on the planning benchmarks for the IT system development of the 2010-2035 judicial reform blueprint, especially those related to judges, the author makes it the basis for conducting an exposure analysis of current (contemporary) achievements and making projections of optimizing the potential of the IT system, especially electronic court.

2. Contemporary Exposure

Referring to the 2010-2035 judicial reform blueprint, the migration process from the conventional judicial system to the electronic judicial system should occur in the 3rd (three) yearly 5 (five) phase, namely 2021-2025 but the MA was able to realize it 1 (one)

year faster of a predetermined plan.¹⁷ The modern justice system in Indonesia currently has three applications that are closely connected to the performance of the judiciary related to its core business, namely electronic judicial (e-court) with features: online case registration (e-filing), online payment of court costs (e-payment), electronic summons, e-litigation,¹⁸ electronic copies of decisions (e-copy) and electronic signatures (e-sign).¹⁹ In electronic trials, e-court not only facilitates the conduct of courts, even in several phases of examination it becomes the courtroom itself.²⁰ In addition to e-court, the MA has also developed a Case Tracing Information System (SIPP)²¹ and Monitoring of SIPP Implementation (MIS SIPP).

¹⁵ the 2010-2035 Justice Reform Blueprint, Supreme Court of RI, 2010,, p. 69

¹⁶ the 2010-2035 Justice Reform Blueprint, Supreme Court of RI, 2010,, p. 22-23

¹⁷ it is undeniable that the Covid 19 pandemic disaster has become a momentum for accelerating the use of technology and information in providing services electronically through electronic trials as conveyed by the Chief Justice of the Supreme Court in a YouTube live stream via the Supreme Court's YouTube channel, Supreme Court Annual Report 2020 on 17 February 2021 which started from at 11.00 WITA.

¹⁸ Manual book of *e-court* of Supreme Court, *the electronic justice system* 2019, <https://ecourt.mahkamahagung.go.id/>

¹⁹ Can be accessed via <https://ecourt.mahkamahagung.go.id>

²⁰ Understand Article 26 and Article 27 of the Supreme Court Regulation Number 1 of 2019 Concerning Case Administration and Electronic Judicial. The presence of the parties in the court information system equal with attendance in a opened trial to the public, and electronic trials through the court information system have complied with the principles and provisions of opened trial to

the public

²¹ SIPP is useful in providing information related to case numbers, registers, names of parties, case status and others, both information can be accessed by the wider community and internal courts themselves. sipp. In front of the court's website address, for example sipp.ptun-banjarmasin.go.id

All three are web-based applications directly related to case handling, with the existence of e-court and SIPP it is proven that case administration and judicial processes are faster, easier, transparent, lower costs and better documentation of cases and judicials. While, with the MIS SIPP there is a monitoring and control mechanism for filling in information data within SIPP. In the event there is a discrepancy or delay in filling out SIPP, fast, precise and measurable action can be taken by interested users. Therefore, the current electronic judicial in Indonesia has also increased the performance of the court administration system and reduced manual work and replaced it with computer-based processes. Moreover, with the support of SIPP and MIS SIPP, electronic court has a control system that makes it an accountable and reliable system.

Not only the development of electronic court, the MA has also developed several web-based applications aimed at improving the quality of judge's judgments including: First, e-learning is a manifestation of development and education transformation for all human resources, including judges in increasing their knowledge and capacity which is expected to also have an impact for the quality of judgments;²² Second, the Legal Documentation and Information Network (JDIH) which contains a collection of regulations and legal principles in the group of laws and regulations, Supreme Court policies, and jurisprudence including landmark decisions;²³ Third, the decision directory which contains a collection of judgments that have permanent legal force and are still undergoing legal action;²⁴ Fourth and most recently is the E-RIS (Electronic Research Information System) application which is useful to assist judges to obtain references and rational legal considerations in order to realize a comprehensive legal unity and consistency of judges' judgments.²⁵

E-RIS is an internal application of MA that can be used as a supporting tool for judges in finding relevant information in deciding cases. E-RIS is a form of commitment to realizing a unified application of law in the Supreme Court in order to create consistency

in judgments. Currently the E-RIS may only be a reference and reference for judges in exploring considerations on the judgments of the previous panel of judges for corruption cases, but in the future it is planned that the E-RIS may be used for all cases. The main features in the current E-RIS application are: Minutes of discussion of laws and regulations feature, decision annotation feature. features of expert opinions contained in judgments and the media, features of the summary of judgments of the Constitutional Court and finally features of research results.²⁶

E-RIS Is a form of integrated information management planning and an achievement in terms of infrastructure investment for data recording and management (data and information management), process control (workflow management), document management and facilities for

²² Another benefit of e-learning; forcing participants not to be clueless, effective and efficient in assessment, reducing ability gaps, reducing paper use,,
<https://bldk.mahkamahagung.go.id/id/sekretariat-id/dok-keg-sekretariat-id/1161-manfaat-lain-penggunaan-e-learning>, accessed 25 february 2021 at 08.00 wita, relevant web: <https://e-learning.mahkamahagung.go.id/>

²³ for further access in <http://jdih.mahkamahagung.go.id/>

²⁴ for further access in: <https://putusan3.mahkamahagung.go.id/>

²⁵ Chief Justice of Supreme Court launched E-RIS Application (*Electronic Research Informationsystem-Sistem Informasi Riset Elektronik*) virtually, Humas, 22 February 2021
<https://www.mahkamahagung.go.id/id/berita/4527/ketua-mahkamah-agung-luncurkan-aplikasi-peluncuran-aplikasi-e-ris-electronic-research-information-system-sistem-informasi-ri-set-elektronik-secara-virtual> accessed 23 februari 2021, at 09.00 wita
remark; the existing one for corruption case only, while the other cases will be followed immediately.

²⁶Chief Justice of Supreme Court launched E-RIS Application (*Electronic Research Informationsystem-Sistem Informasi Riset Elektronik*) virtually, Humas, 22 February 2021 <https://www.mahkamahagung.go.id/id/berita/4527/ketua-mahkamah-agung-luncurkan-aplikasi-peluncuran-aplikasi-e-ris-electronic-research-information-system-sistem-informasi-riset-elektronik-secara-virtual> accessed 23 februari 2021, for further access in ; <https://eris.mahkamahagung.go.id/>

extracting knowledge from the owned set of data (knowledge management) according to the 2010-2035 judicial reform blueprint. The application functions optimally when a lot of data is stored, so that the need to perform functions of search, grouping, and provision of access to data required by judges is fulfilled.²⁷

Currently, 'The development of e-court and IT' systems to improve the quality of judge' judgments is very encouraging, even faster than the target specified in the 2010-2035 judicial reform blueprint timeline. But there is still some potential for development, in electronic justice, including: There is still not optimal appeal or other legal remedies electronically,²⁸ electronic proof is not yet optimal, making decisions and minutes which still use the upload system, information and interaction of the parties rely too much on corner officers e-court, there is no advisory feature yet, and the most basic is that currently e-court is still linear, meaning that e-court is used to accommodate general and customary procedural processes, if there is an unusual or unexpected process, steps are still being taken conventional first and then the court accommodates it in e-court, for example case fees are paid with a virtual account that is greater or less, the entry of substitutional power or incidental power, the entry of parties on a free basis, the inclusion of intervention when the e-court is already running and so on. Whereas in the IT' system to improve the quality of decisions, there is still some data and information that is still not updated, even in E-RIS currently it is still limited to corruption cases. However, these potential development spaces are only related to technical issues of development and process stages, not to problems with planning as a grand design.

3. Projection of Optimization

In 2025, entering the last decade in the 2010-2035 judicial reform blueprint target with the target of integrating the judicial process with external stakeholders, including other legal enforcers in the framework of an integrated legal service system (integrated justice

system). At this stage efforts were made to integrate the information spread to the police, prosecutors and correctional institutions, particularly related to expiration of arrests and detentions, and monitoring the development of the status of handling case and convicts, along with remissions and so on, which was intended as part of the oversight and observation mechanism. judge of a criminal case.

²⁹

Whether it is achieved or not, sooner or later in accordance with the establishment of an integrated legal service system in 2035 requires the synergy and readiness of other agencies (external stakeholders). So that the achievement of 2035 is a joint achievement, if one of the external stakeholders does not follow the steps that will hinder this achievement. However, from the standpoint of the MA itself, with due observance of the policies that have been made,³⁰ current planning and achievements, including planning up to 2035

²⁷ To compare current achievements can be compared in planning, see more in the 2010-2035 Judicial Reform Blueprint, Supreme Court of RI, 2010 p. 68

²⁸ See: Decision of Chief Justice of SC Number :129/KMA/SK/VIII/2019 on Technical Guidelines for Case Administration and Judicial in the electronic Court, Decision of Chief Justice of SC Number: 271/KMA/SK/VIII/2019 regarding Technical Guidelines for Administration of Cases and Trials at the Courts of Appeal, Cassation, and Electronic Judicial Review, tingkat direktora, it can be seen in Decision of Directorate General of Military Judicial Body and State Administrative Judicial Number: 10/Djmt/Kep/I/2021 concerning Administrative and Judicial Technical Instructions in Electronic Appeal Legal Efforts in the State Administrative Court;

²⁹ The 2010-2035 Judicial Reform Blueprint, Supreme Court of RI,

2010 p. 36

³⁰ One of them is the Decision of the Chief Justice of the Supreme Court Number 269/KMA/SK/XII/2018 concerning Governance of Information and Communication Technology within the Supreme Court and the Judicial Bodies underneath it.

based on the judicial reform blueprint, human resource development³¹ and cyber culture that has been built since the first 5 years of the implementation of the 2010-2035 judicial reform blueprint of MA will achieve or exceed the target for the 2035 reform blueprint. This is because 2025-2035 is the stage towards an integrated legal service system (integrated justice system) for the Projections in 2021 to 2025 even up to 2035 MA shall continue to optimize electronic judicial and IT systems to improve the quality of judge's judgments to the maximum stage, while waiting for synergies from external stakeholders in carrying out development of the integrated legal service system.

Optimization of electronic judicial in the next few years includes: First; improving features, appearance, performance and application security, as well as increasing system flexibility so that it can accommodate events that are not linear or unusual as the authors mentioned earlier. Second; optimization of appeals and legal remedies electronically, Third; optimizing electronic verification in terms of regulations, infrastructure and mechanisms that are effective and efficient. Fourth: making decisions and minutes with templates available on the e-court page made with the application's built-in text editor, Fifth; creating an online chat feature during recorded and controlled working hours, this feature can facilitate communication and provide information to parties, for example; there is a third party who wants to enter as a party can be given temporary access until it is determined as a party, this is intended so that the party responsible for their authority can provide the information needed (for example informing the rights and conditions needed to become a party). Sixth; the feature for filling in *Advisblaad*/judge opinion in deliberations which is limited access and guaranteed security as well as privacy;

Optimization of IT systems in the next few years is updating and adding data information so that E-RIS provides all data for all types of problems. In addition to the minutes features on discussion of laws and regulations, the judgment annotation feature, the expert

opinion feature included in the decision and the media. summary features of Constitutional Court judgments, research results features, several other features can also be added, namely: group discussion results features from e-learning,³² Information and Legal Documentation Network features including jurisprudence groups, decision directory features³³ included in E-RIS so that E-RIS become a unified integrated knowledge database (knowledge base) for judges. E-RIS is an information retrieval and reporting application as planned in the 2010-2035 judicial reform blueprint. Whether the information in these features is wholly or partly accessible to the public or may only be accessed by internal MA and the judiciary underneath it is a topic that may come up in the discussion space and planning policies.

The development phase of E-RIS into a knowledge base is a major asset towards the technological disruption stage. because the knowledge database is the main requirement in the development of expert systems. With the development of E-RIS in such a way, MA has great potential to develop expert systems. If the E-RIS has

³¹ The author has seen the Annual Report of the Supreme Court, the Working Group Team of the Indonesian Supreme Court Annual Report for 2015, 2016, 2017, 2018, 2019 and 2020 which have not been published on the website at the Supreme Court

³² It is also necessary to develop e-learning features by including the results of class/class discussions in each judge training conducted

³³ Currently, even though there is a JDIH and a Directory of judgments, it is necessary to unify data with E-RIS in the future, after that the JDIH and Directory of judgments features can be removed or can still be available as information access for the public.

become a knowledge database in the last period of the 2025-2035 judicial blueprint, planning for an expert system can be carried out in the same period, while its development can be carried out after 2035, as one of the priorities in the further development of electronic court.

B. EXPERT SYSTEM³⁴

1. Definition, Structure dan Method.

Expert systems are a sub-discipline of artificial intelligence (Artificial Intelligence). Expert systems have been known and used in various sectors of life including; the mysin application is an expert system for diagnosing diseases, the dendral application is for identifying the molecular structure of unknown mixtures, prospectors in the field of geology to help search for and find deposits, folios to help provide decisions to managers in investment,³⁵ while in the field of law it is well known including SHYSTER, an expert system designed for a number of legal domains, including contract law, private law, copyright and administrative law of Australia³⁶ and ASHSD is a case-based expert system in the area of property and marital disputes under English law.³⁷

An expert system is a system that uses human knowledge where that knowledge is entered into a computer and then a computer program performs reasoning to solve problems in a specific area (domain) that requires human expertise or expertise.³⁸ In order to build an expert system, it is necessary to know its structure shall include the following:

- Development environment consists of:
 - Knowledge Acquisition; This sub-system is to enter knowledge, by engineering knowledge so that it can be processed by computers and placing it into the knowledge base, knowledge can be obtained from experts, books, documents, special reports and information found on the web.
 - Knowledge base: the knowledge is needed to understand,

formulate and solve problems, the knowledge base has two basic elements, namely: First; facts such as situations, conditions, circumstances. Second, Rules is for directing users to solve problems.

- Connecting or intermediary elements:
 - Inference Engine; has a function to guide the reasoning process based on the existing knowledge base;
 - Consultation environment shall include matters are as follows:
 - Blackboard (*Daerah Kerja*): to record temporary results that will be used as a decision and to explain a problem.
 - User interface (*Antarmuka pemakai*): a medium of communication between the user and the expert system
-
- Explanation subsystem/justifier (*Sub sistem penjelasan*); function on explanation to the user, conclusions can be drawn

³⁴ In addition to expert system, there is also a similar system, namely a decision-making system (Decision Support System) but the author chose an expert system because the expert system has several advantages of a more detailed reasoning flow and the ability to explain ;.

³⁵ Zulfian Azmi and Verdi Yasin, Introduction to Expert System and Method, Mitra Wacana Media ; 2017, p. 12

³⁶ This expert system developed through a dissertation of James Popple, *A pragmatic Legal Expert Sytem, Applied Legal Philosophy, Dartmouth Publishing Company, Australia, 1996*

³⁷ Pal Kamalendu dan John A Camblell, *An Application of Rule-Based and Case-Based Reasoning within a Single Legal Knowledge- Based System, The Data Base for Advances in Information System, 1997, vol 28 No 4, p. 48-63*

³⁸ in this case Author combined, definition of Turban (2011), Jakson(1999), and Luger,stubbeffield (1993) see more in Zulfian Azmi and Verdi Yasin Introduction to Expert System and Method, Mitra Wacana Media : 2017, p. 12

- Knowledge refining system
the ability to improve knowledge from experts is necessary to analyze knowledge, learn from past mistakes, then improve it for future use.
- User.³⁹

The expert system has an inference method which is a way of making conclusions carried out by an inference engine in solving problems, including the following: First, forward chaining starts reasoning facts to a conclusion. Second, backward chaining is reasoning from conclusions and then tracing facts. Third, the Dempster Shafer method is used to combine separate pieces of information or evidence to calculate the probability of an event. Fourth, the Bayes Theorem method is used to calculate the probability of an event occurring based on the influence obtained from observation, the certainty factor method is used to prove a fact is certain or uncertain, the Case Base Reasoning (CBR) method is a way of diagnosing new cases refer to the existing case based on the highest similarity value.⁴⁰ The development of an expert system in court is able to use one method or a combination of several methods, according to the method of reasoning commonly used by judges.

2. Potential Expert Systems as an Input for Decision and Integration with E-Court.

The development of the E-RIS application in such a way that originally as an information retrieval & reporting application must be able to extract knowledge from a collection of data owned (knowledge management)⁴¹ and make it explicit knowledge.⁴² Thus, through the knowledge database in E-RIS, a development environment has been built in the form of knowledge acquisition and knowledge base which is a great potential in the development of expert systems in court. The next stage is the development of an inference engine that will link the development environment with the

consulting environment: work areas, interfaces, explanation sub-systems and knowledge improvement systems.⁴³

Currently, there have been several studies examining the use of expert systems that can provide information to stakeholders, including input for judges in deciding a case, these studies included the matters are as follows;

Researcher, Khairah with the title Expert System Determining Road Traffic Traffic Ticket Witnesses (LLAJ) Using the Forward Chaining Method (Case Study of Tembilahan District Court) with the conclusion that the expert system determined road transport traffic ticket penalties (LLAJ) is able to assist and determine fines road freight traffic (LLAJ) consistently. Examples of reasoning methods used in the study:

³⁹ Zulfian Azmi and Verdi Yasin, Introduction to Expert Systems and Methods, Mitra Wacana Media ; 2017: p. 15-17

⁴⁰ Ibid, p. 19-21

⁴¹ Compared with planning on 2010-2035 Judicial Reform Blueprint, Supreme Court of RI, 2010, p. 68

⁴² Compared with planning on 2010-2035 Judicial Reform Blueprint, Supreme Court of RI, 2010, p. 23

⁴³ In this stage, in addition to the important figure of an engineer or application developer expert who is able to translate knowledge into programming algorithmic language, a group of experts who are able to sort knowledge into facts and rules are also needed. integrity, Judges who have just entered their retirement period can be one of the ideal choices;

<i>Rule</i>	Conditions and Actions
<i>If</i>	has not met requirement of worthiness
<i>And</i>	Article 286 jo 106 (3) jo Article 48 (3) UULLAJ
<i>Then</i>	Maximum fines of Rp 500.000,00 ⁴⁴

In addition to this research, there are other studies, among others: Anggia Dasa Putri and David Pratama with the conclusion of the research that a web-based expert system using the forward chaining method is able to detect types of cases and determine sanctions for cybercrime crimes.⁴⁵ Mei Indah with the conclusion of the research that the expert system for identifying cyber crimes is able to help identify cyber crimes based on the characteristics of the case, so that it can be concluded what articles will apply to them.⁴⁶ Andreas Handojo and Isa Irawan with the conclusion of the research that the use of rule-based methods and forward chaining inference is suitable for making expert system applications in the criminal law issues discussed, based on the results of testing expert system programs are useful for helping users understand the articles governing legal issues crimes against property,⁴⁷ Juwairiah et al with the conclusion that expert systems simplify in providing information about narcotics and assist in order to determine related articles.⁴⁸

Based on some of these research results and also based on reasoning methods that can be used in expert systems, theoretically, expert systems have considerable potential to be developed in the electronic judicial system in Indonesia, both in General Courts, Religious Courts, State Administrative Courts and Military Courts. Expert systems are able to assist judges in providing input information regarding conclusions on decision that can be given in a case. Such input is according to the rules of reasoning, faster and consistent.⁴⁹ With consistency and speed⁵⁰ of an expert system, in addition to able to increase legal certainty in reducing the distance between decision disparities, it may also provide more space for judges to elaborate on cases with certain complexities that have not

been accommodated in an expert system.⁵¹

It should be emphasized that the existence of an expert system only serves as a tool in providing input that is advisory and predictive in nature to

⁴⁴ Khairah, The Expert System Determines Traffic Ticket Witnesses of *Lalu Lintas Angkutan Jalan* (LLAJ) Using the Forward Chaining Method (Case Study of Tembilahan District Court), *Jurnal SISTEMASI*, Volume 3, Number 1, January 2014 : p. 15 – 27

⁴⁵ Anggia Dasa Putri and David Pratama, Research with the title of Expert System for Detecting Cybercrime Crime Using the Web-Based Forward Chaining Method in Batam City, *Journal of Edik Informatics, Research in the Field of Computer Science and Informatics Education* V3.i2(197-210), 2017

⁴⁶ Mei Indah, Publication Manuscript, Expert System To Identify Cyber Crimes, *Jurusan Sistem Informasi Sekolah Tinggi Manajemen Informatika Dan Komputer AMIKOM Yogyakarta*, 2010

⁴⁷ Andreas Handoyo and Isa Irawan, Design and Creation of Expert System Applications for Problems of Crime Against Assets, *Journal of Informatics, Journal of Informatics*, Vol. 5, No. 1, Mei 2004: p. 32 – 38

⁴⁸ Juwairiah, Yuli Fauziah, Ystina Eva Afriliani , Web-based expert system for determining articles of Narcotics Crime, *National Seminar on Informatics 2010*,

⁴⁹ This consistency is because reasoning in expert systems is built with algorithms that avoid bias, emotions and other external environmental factors, other benefits; high performance, fast response time, good reliability, permanent. See more in M. Venkateswarlu Naikand dan Sushant Lokhanday, *Building Expert System For Legal Reasoning In Specific Domain- A Survey*, *International Journal Of Computer Science and Information Technology (IJCSIT)* Vol 4. No 5; 2012 halaman 177, 178

⁵⁰ With the speed that the judge/user has, they have a lot of time to

evaluate the output

⁵¹ The Chief Justice of the Supreme Court in his inauguration speech for the Professor of law at UNDIP conveyed a new legal approach, namely legal heuristics, in that context judges play an important role in harmonizing law and justice in the form of interpreting rules; forming new rules in a norm; encouraging the movement for legal reform is a representation of the creative process in adjudicating and deciding cases. It includes rationalization, continuity of thought, and the will to realize substantive justice, in the Live Streaming Youtube, Channel of Supreme Court, Chief Justice of MA in his speech, inauguration of Chief Justice of MA , Prof. Dr. H. Muhammad Syarifuddin, S.H.,M.H as a Professor of Law Faculty of UNDIP, 11 February 2021 at 11.00. WITA-end Regarding this matter, the author believes that legal heuristics can be applied to all aspects of cases with a certain complexity.

judges, and can never replace the role of judges.⁵² Therefore, technological disruption must be managed in such a way, so that it has certain limitations so that judicial functions in the judicial process can run more optimally.

Judiciary is a process carried out by the court in the duties of examining, deciding and adjudicating cases, so that with electronic judicial it means carrying out these duties electronically. Currently, electronic judicial has almost all the features to facilitate the entire process⁵³ by including the *adviesraad* feature⁵⁴ as stated by the author to the previous sub-chapter therefore by entering an expert system⁵⁵ in one of the features in e-court shall make electronic judicial an integrated system and truly shows the appearance of the real judicial process, including the judge's reasoning process in deciding. By including an expert system in one of the features in e-court, the Supreme Court, in addition to using electronic judicial as a service function, namely accelerating the process and also making it easier for justice seekers, uses e-court as an electronic judicial that can improve the quality of judge's judgments. With the implementation of these two functions, the electronic judicial is more optimal in realizing the Supreme Court's vision.

CONCLUSION

The author projects that in 2021 to 2025 and even up to 2035 the Supreme Court shall remain to optimize electronic justice and IT systems to improve the quality of judge's judgments while waiting for synergy with external stakeholders in building of integrated legal system services, which is the main target of the judicial reform blueprint in 2025 -2035. Optimization of electronic justice is carried out on technical development in the form of; increasing flexibility to accommodate unexpected trial proceedings, improving appearance and performance, as well as improving and adding features so that e-court accommodates the entire judicial process, including the process of making *adviesraad* even though these features are confidential

with a high level of security. While optimizing the IT system by developing the potential of E-RIS into a knowledge base.

The development of a knowledge database is the main potential in the development of an expert system that may assist to provide input to judge judgments. The input is in accordance with the rules of reasoning, faster and more consistent. By integrating expert systems as one of the features of electronic justice, electronic justice has two functions, first; namely service function; accelerating the process and providing convenience for justice seekers, second; serves as an enhancer of the quality of the judge's decision. With these two functions running, the role of electronic justice is more optimal as one of the important factors in realizing the Supreme Indonesian Judicial Body.

⁵² Judges do not only give judgments but judges manage cases, create and work responsively and humanely in resolving conflicts, besides that judges have a role in public and educational functions. The real contribution is that the judge has a subconscious mind and wisdom that is not owned by an Artificial Intelligence, Further: Journal, *Tania Sourdin dan Richards Cornes, Do Judges need need to be human? The Implication Of Technology For Responsive Judging? Springer Nature Singapore Pte. Ltd* 2018, p. 113-114 and *our philosophy study is unable to possibly avoid technology in our lives, but with free will we still have the choice not to let technology dominate us*, Francis Lim, Filsafat Teknologi, Don Idhe about the World, Human, and Tools, PT kanisius, Yogyakarta, 2008, p.1991-192

⁵³ Online case registration (e-filing), online payment of case cost, electronic summon, electronic judicial (e-litigation), electronic copy of judgments, electronic signature.

⁵⁴ The room for the opinion of each judge is very guarded for privacy and security. This display is a closed view, which can only be seen between the panel of judges.

⁵⁵ Whether the results of the expert system can be accessed later or not, or whether the parties may access the history of the use of the expert system in this case constitutes a discussion of ethical strategies that can be studied further;

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