

Litigation Visualization Through Transdisciplinary Design

Fanglin CHAO¹

Department of Industrial Design, Chaoyang University of Technology, Taiwan, R.O.C.

Abstract: Law is the rules of the society. The judgments are based on understanding the rules and legally-valid information as well as corroborating advice. Recently, the questioning of the impartiality of the judges has caused people's mistrust of judicial system. There are many ways to visualize the litigation process such as data visualization and language analysis. Clarifying the meaning and function of these terms in a socio-political system can be a helpful start towards unraveling the notion of transparency. Legislative transparency remains an issue with many interesting aspects yet to be explored. In this study, the graphic and simple ways are utilized to express the verdict so that people with no legal backgrounds have more opportunity to understand the arguments. By conjoin legal professional and designer, court decisions were analyzed and represented as graph to visualize the facts, laws and logical reasoning. User and task analysis is a process of learning about user by reviewing them in action. We observed and talked with users to acquire the opinions as follows. Visualization of litigation process through flow chart, diagram, color and shape help people to understand its meaning; users need to have a consistent meaning of colors, symbol and shapes to reduce possible confusion. It indicated that for exploration and to comprehend its legal relation visualization rules for legal items are required in further study.

Keywords: Litigation, administrative law, visualization

Introduction

Litigation is a highly structured process of dispute resolution to provide a means to authoritatively adjudicate a dispute between parties based on a set of formalized procedures [1]. While parties argue their case against each other through the usage of discovery and courtroom procedures, each party assembles its argument supported by findings and facts.

The first stage involves the investigation and filing of the complaint. During this stage, the attorney investigates the factual basis of the claim and legal theories of liability. The second stage is discovery; it allows both the plaintiff and defendants to send written questions to the opposing party. In the third pre-trial motions stage, parties issues narrowed to establish the procedures to be used at trial. In the fourth stage, both parties present their case to a judge and listen to the instructions of law given by the judge [1].

What people concerns are whether the desired decision can be obtained, and

¹ Corresponding Author, E-Mail: flin@cyut.edu.tw

whether the decision will be enforceable? General litigation concerns from the public include: who wins and who loses, the reason, and whether the results meet the society expectation? The definition of expectation is problematic:

1. The general public assessed only limited information mostly through news. Sometimes the reporters are biased, or focus only on certain issues. The general public also has limited legal knowledge. Powerful, well-legal resourced parties have a tendency to determine justice according to their interests.
2. The outcome of the trial is written in legal terms, which are difficult to understand by people. People have no time and ability to understand it, so that the communication between the court and public are not well connected.
3. The complexity of facts, law and procedures made a plaintiff confused on preparing and obtaining expected decision. When procedures are incorrect, or when factual evidences are insufficient to be verified, plaintiff's request may not be acknowledged during the legal procedure. The plaintiff may feel disappointed and give unfair accusation on the legal system.

Public interest litigation (PIL) is also known as "social action litigation". Litigation commenced in the pursuit of the public interest, either by a public-spirited individual or by the court acting. It is not in pursuit of individual remedies by or for a specific person, but often for the protection or advancement of group rights, most useful in the pursuit of social, economic and environmental rights. Law is social auditor and this audit function can be put into action when someone with real public interest ignites the jurisdiction. Public interest litigation can be a panacea for administrative ills in public administration - involves judicial review of government policies and actions.

Administrative law encompasses laws and legal principles governing the administration and regulation of government agencies [2]. Administrative agencies are created to protect a public interest rather than to vindicate private rights. Taiwan follows the civil law system and the principle of "nulla poena sine lege" (no penalty without a law). When trying to make a decision, the Courts look to what the Constitution states first and then to codes, statutes, and ordinances.

Taiwan has a three-tiered court system made up of the Supreme Court, the High Courts, and the District Courts. High Courts have several tribunals for civil and criminal trials made up of a presiding judge and two other judges. District courts are usually presided over by one judge. Court decisions become binding precedent when they are final judgments entered by the Supreme Court [3].

1. Legislation as TE

Trans-disciplinary Engineering (TE) emphasizes the need for different disciplines to collaborate across intra- and inter-knowledge borders. Such collaboration already exists in engineering renovation, product and service design. Not only engineering disciplines are involved in collaboration, but also marketing, production, maintenance, service, sales, legal and financial entities [4]. It takes many years to take the necessary steps to master the many challenges that accompany TE [5]. There are also many trade-offs to be made, such as legislation of the different countries, differences in cultures and working habits [6].

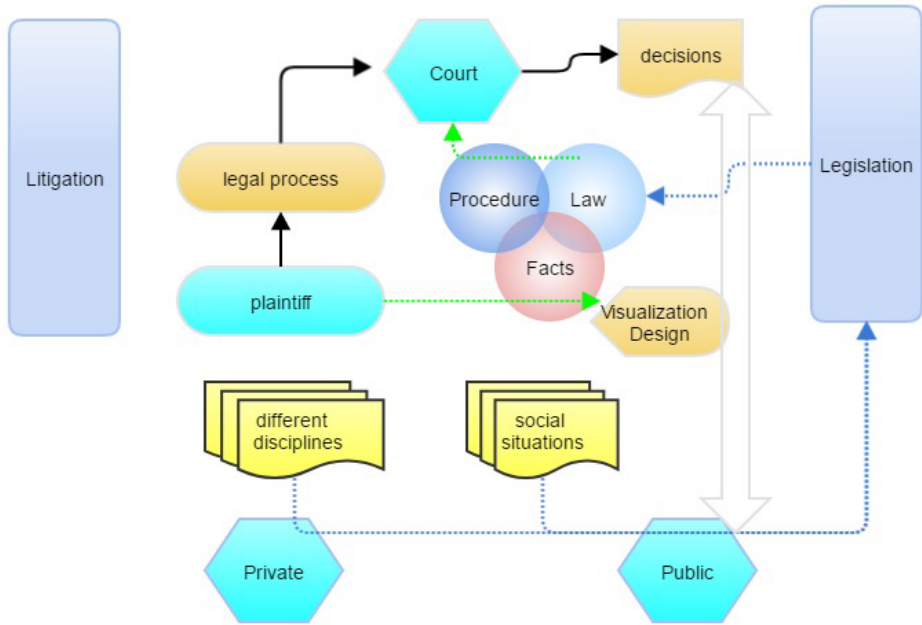


Figure 1. Integrated legal process.

We can make the analogy between the legal process and the product TE process. The society is changing fast, the technology and business also update quickly. Behind the changing society, there are values changing and new requirement arises. For instance, owing to understanding the human health, the industrial pollutions become critical issues for our society. A private legal event about local water pollution may hold the attention by public domain. While the court make decisions based on previous legislation, it may deviate from the current mainstream public opinion. To achieve integrated dynamic legal process, more active legislation are required through communication with different disciplines and society (Figure 1). Quick information and opinions feedback are needed for enabling and supporting such positive self-adaptive loop. Such systems require intra- and inter-society collaboration and exchange of facts, knowledge in the form that most people can understand.

“Judge without extra word” means decision (the verdict) can communicate with the people by itself. But the verdict is usually long and arduous; people can not understand it, hence the communication channels are blocked. Traditional passive communication way is no longer effective and causing misunderstandings among the public. Visual design can reduce communication barriers; promote the understanding between the parties, lawyers and judges. To achieve integration, positive feedback loops are needed by the current legal system. The Figure 1 also emphasizes that the communication is a key element of legislation and litigation process.

2. Visualization through Transdisciplinary Design

Visualization through design does have great impact of product acceptance; i-Phone is a successful example. User friendly design can reach customers whom have never been

reached before [7]. User interface engineering is the design of user interfaces for machines and software, such as computers, home appliances, mobile devices, and other electronic devices, with the focus on maximizing usability and the user experience [8]. The goal of user interface design is to make the user's interaction as simple and efficient as possible. Graphic design is utilized to support its usability, influencing how the user performs certain interactions [9]. Those design principle can transfer to improve the communication of legal system too. Some examples are discussed as the follow.

Visually representing a legislative text and its amendments might possibly reveal important aspects. In recent design camp of the Law Factory project [10], two designer groups independently combined data for law-making processes with an array of visualization methods, in order to bring forward different points of view of the same phenomenon. The ability of in-depth exploration is facilitated by providing further background information in order to help end users navigate, comprehend and interpret the visualization.

Using data visualization, language analysis, and machine learning, the Stanford Law grads created Ravel, aiming to reinvent legal research and deeper understanding of their field in the process [11]. Early users have reported that Ravel cut their overall research time by up to two thirds. It lets you see how cases evolved over time, and potentially lets you see outliers that could be useful in crafting an argument.

“Legislative transparency for non-lawyers” was discussed recently. Clarifying the meaning and function of these terms in a socio-political system can be a helpful start towards unraveling the notion of transparency. Citizen engagement requires constant commitment and strives through a variety of tools and actions. Legislative transparency remains an issue with many interesting aspects yet to be explored. The transition from the natural language of people into everyday life jargon of professional people is an important issue. C.W. Kessel imparts intensive and reflected law knowledge to children and young people and tries to arise the curiosity for the logic and concepts of law [12]. The structures of legal elements (Figure 2) are demonstrated as a mechanism which helps people understand its relationship between the legal elements [13].

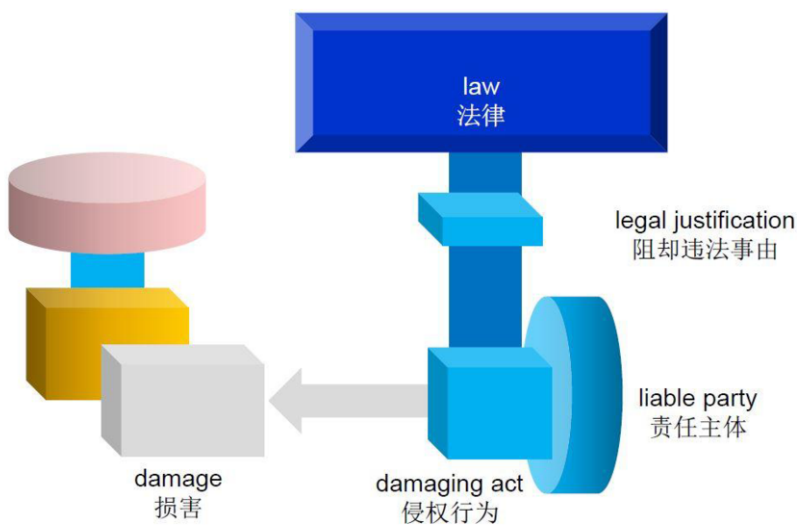


Figure 2. Mechanism of legal elements [13].

David maps out the potential benefits of visualization tools [14]. It can provide faster, more meaningful search results. A strong visualization element represents a compelling value proposition. Data visualization allows for relationships between legal data to be highlighted in a way more readily discernable to the human eye. Visualization can transform the process of understanding the meaning of results turned up in legal research. Relevant cases through relationship mappings let people quickly understand the links between cases.

3. Litigation visualization of cases in Taiwan

Taiwan Administrative Litigation Act, taking effect on July 1, 2000, consisted of 308 articles. It abolished the second administrative appeal that had been mandatory prior to suing a government agency in an administrative court for expanded protection of rights.

The case on appeal will check whether the case complies with procedural requirements. An appeal to Supreme Court may only be filed on the ground that the judgment is contrary to laws and ordinances. Each panel, comprised of a Presiding Justice and four Associate Justices, decides cases by majority. Joint Conference of the Justices is held periodically, based on the circumstances; it is usually held 1 to 3 months apart [15]. When the topic has been thoroughly discussed, a poll will be conducted by the attendee, and the result be published. It is a statutory mechanism that functions as the en banc court to maintain the uniformity of legal opinions. Four cases of Joint Conference of the Justices were analyzed in next section.

3.1. Joint Conference 2016-10-1: Violation of drug

Article 24 of the Pharmaceutical Law states: "drug advertisements referred to in this Law refer to the use of communication methods to promote medical performance for the purpose of attracting sales." Advertising is a collective concept of attracting sales one or more times. Repeated violations of the law should therefore be assessed as one offence, and only after the authorities ruling, will new offence be counted as next offence. The plaintiff advertised "far-infrared therapy instrument" in the same period 76 times. The behavior should be considered one violation of Article 65 of the Administrative Law, rather than a number of activities.

Visualization design (Figure 3) indicated with:

1. There are 2 lines (law and fact) that can be reference to each other.
2. Article 24 of the Pharmaceutical Law use a document symbol.
3. Logic reasoning represented by bar with one circular end.
4. Solid line: consequence, dotted line: possible implication.
5. Hexagonal box represented related facts.

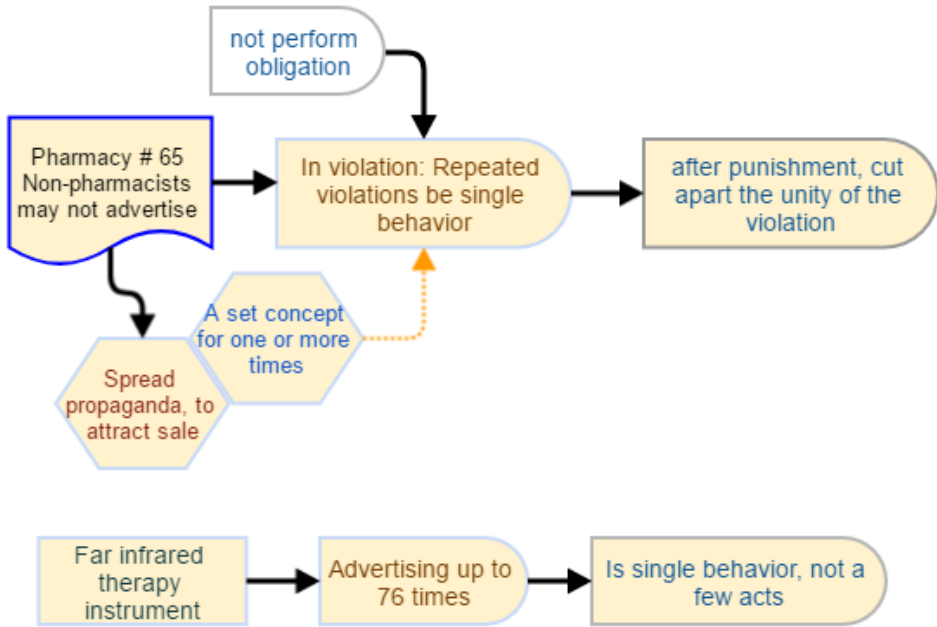


Figure 3. Repeated violations of the law.

3.2. Joint Conference 2016-07-1/ Refund the wrong tax

After tax payment, if taxpayers found any mistakes, they need to report it. If the wrong calculation resulted in paying more tax, one can apply for tax rebate. The reporting process and tax levy authority's verification must be done during specific time, but for more complex cases, mistakes may often be discovered after that period. The period is 5 years from the date of payment. However errors due to tax levy authority's calculation, authority must refund within 2 years. Even if the authority error was discovered after 5 years' time, it was ruled that the case will not be bound to the 5 years limitation.

Visualization of litigation (see Figure 4) indicated with:

1. Claim the tax rebate period is divided into different sector.
2. Wong fact or law caused by government agencies follow different path.
3. Special consideration on government agencies aware and corrected error.
4. The permitted time period for tax rebate application depends on type of claim rebate.

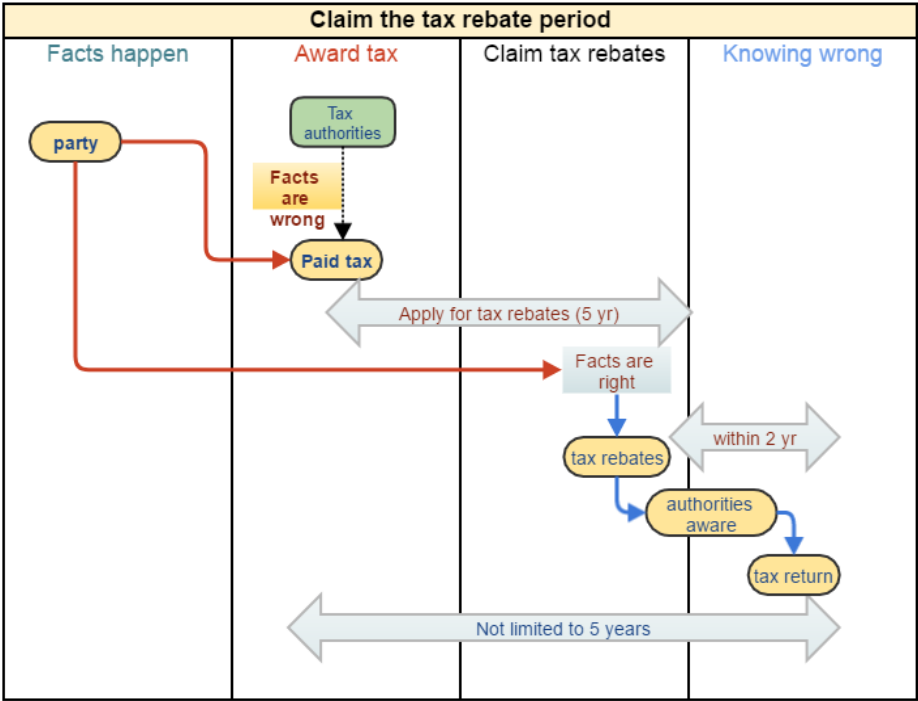


Figure 4. Case on apply tax rebate.

3.3. Joint Conference 2016-04-2/ Impose a duty of disposition

When one was ruled a fine due to tax paying process, but passed away during administrative dispute process, should the heir faced with the enforcement of such fine based on the earlier rulings? Article 50-2 of the Tax Collection Law: If the victim is dissatisfied, it shall be handled in accordance with the administrative relief procedure. Before the end of the administrative relief procedure, shall not be enforced in accordance with the provisions of Article 39. After ruling takes effect, unless stated otherwise in law, the ruling can be forcefully executed. In accordance with the provisions of Article 50-2 of the Tax Collection Law, it shall be exempted from the compulsory enforcement of the administrative proceedings. This law provides suspension of execution, and by no means it is not enforceable.

Visualization (Figure 5) of litigation indicated with:

- 1. Tax succession event was characterized by four phase.
- 2. The plaintiff's action display on each time frame.
- 3. The inherit process happened after the tax enforced due to the tax fine.
- 4. Article #50-2 reference applied regulation.

3.4. Complex cases with the land

Liberty Times A28 reported that "the lawsuit lost, the school will tear down". In order to avoid misleading of the public, the Taichung Administrative Court specifically

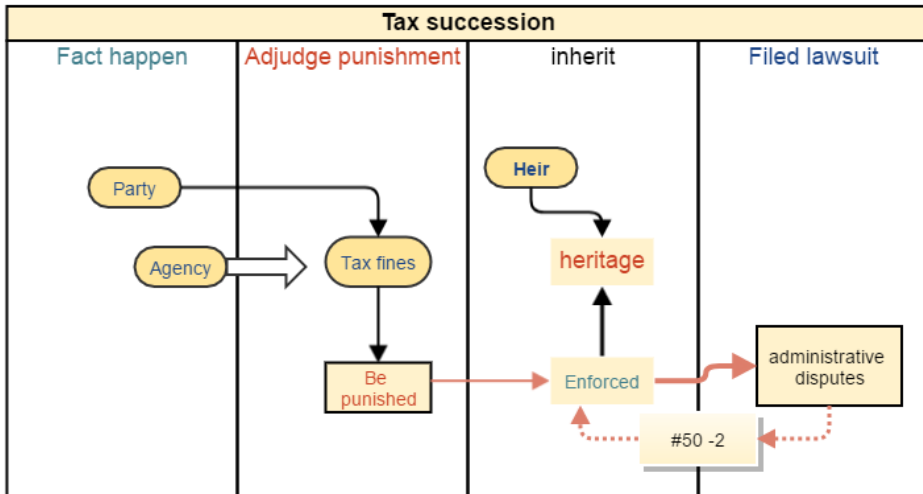


Figure 5. Case of tax succession event.

stated to the general public [16]. The county government's urban planning provided the new school building project; need to utilize the original location of Changhua County (total 24 pieces of land). The Government approved the land acquisition in 1989 and the approval period had been extended to 2001. Owing to the county government did not start to use the land to construct the school before approval period, the original land owners apply to the county government for the returning their land. Consequently, they filed suit in administrative court. The litigation process, facts and the result of the trials are summarized in Figure 6.

The Changhua County had completed the school construction at the moment, based on public interest and benefits the court dismiss the plaintiff's request. Ministry of Internal Affairs should compensate the plaintiff to recover their damage with money (recalculate the price of the land in 2001 and the accumulative interest since 2005). Owing to the complicity of litigation process, legal relation and the sequence of court judgments, the visual chart was divided in four parts;

1. Facts: major events and the party are arranged according time relative sequence.
2. Process: the sentences that obtained are placed as timeline.
3. Main decisions: the major concerns and its basement were connected with dotted line.
4. Declarations: the announcement to public and the evidence that support it.

Complex cases with the land involved time, different parties, law and public concern. Experimenting with visualization design is to categorize different states, and order them according to time. Then the relationships between different elements are explored, and main relationships between categories are plotted, so ordinary people can understand the ruling based on the corresponding facts and arguments. By presenting these it is hoped that misunderstandings are minimized.

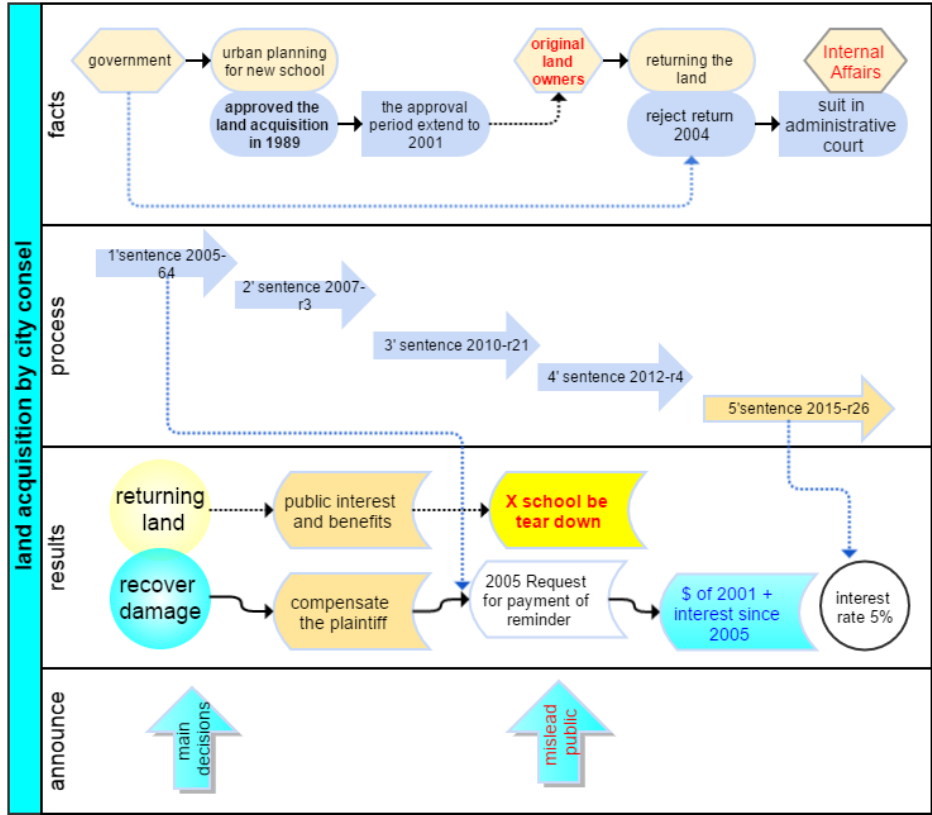


Figure 6. Case of land acquisition event.

4. Acquire public opinions

User and task analysis is a process of learning about the users by reviewing them in action for more understanding in the context. Three visualization cases of Joint Conference and one administrative court case were presented to ordinary people as testers using transdisciplinary design. Testers were divided into two groups. One group reads the text as is, and another group sees the graph first then read the text. After observation, users' opinions were acquired as follows:

1. Seeing the graph first reduces reading time and difficulties. If the graph represents actual logic and relationships, it would construct a more solid mental model in the reader's mind, helping one to understand more fluidly.
2. Visualization of litigation process through flow chart, diagram, color and shape help people to understand.
3. Different colors and shapes increase the attractiveness, but also bring questions. Colors and shapes relative to its meaning; user needs to have a consistent meaning to reduce the confusions.
4. In order to reach an objective understanding of individual cases and allow users to deduce similar reasoning based on prior experience, it is necessary to separate the major concepts and a consistent pattern before presenting.

5. Colors are not chosen based on the aesthetic sense, but by the emphasis or the internal characteristics of facts, processes or judgments. An understanding of local culture and habits is needed in order to choose suitable design elements and presentation styles.

The judge of that specialty was also invited to see the graph, and guess which case the graph was representing. The fact that the case can be recognized successfully also indicates that visual design's effectiveness.

5. Conclusion

We can make the analogy between the legal process and product TE process. The modern society is changing fast, the technology and business also update quickly. To achieve integrated dynamic legal process, more active litigation and legislation are required through communication with different disciplines and society. Quick feedback from people and party is needed for enabling and supporting the positive self-adaptive loop. Such systems require intra- and inter-society collaboration and enable exchange of facts, knowledge in the form that ordinary people can understand.

Interface design principle can be applied to improve communication of the current litigation process. Three cases of Joint Conference of the Justices and one Administrative Court decision were plotted through flow chart and timing diagram. User observation and analysis were conducted to acquire the user's opinion. Visualization of litigation process through flow chart, diagram, color and shape help people's understanding. For visualization to improve, consistent meaning of visual cues is needed to reduce confusion. The design should avoid meaningless decorations, aims to improve cognitions and also understand the meaning of each element in respect to local culture and society. When background visualization rules are established and well understood by the general public in future, one has the ability to conduct in-depth exploration and to comprehend legal relations more easily.

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