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Legal Risks Underlying Human-Computer Interface (HCI) Design: A Comparative Study on Macao vs. Major Jurisdictions

Victor K. Y. Chan

Faculty of Business, Macao Polytechnic University, Macao, China

ABSTRACT

Human-computer interface (HCI) design is an essential aspect of modern technology development, which involves the interaction between humans and computers. HCI design can pose legal risks that may result in significant legal liabilities and consequences for any organization adopting the designs. From the standpoint of an HCI designer as opposed to a legal researcher, this article analyzes the legal risks underlying HCI design and the related regulatory framework in the small jurisdiction Macao in comparison with those in some major jurisdictions, including the United States, the European Union (EU), and mainland China. Relevant statutes, acts, and academic literature are drawn on to support the analysis. Categories of the aforesaid risks are primarily identified as intellectual property, privacy and personal data protection, accessibility, liability for harm, and cybersecurity breaches, only the first two of which are to be elucidated in this article due to its length limitation. The following findings are highlighted: Macao's IP regime does not include provisions very specific to HCI designs, unlike the United States, the EU, and mainland China. Macao's privacy and personal data protection framework is less comprehensive than the General Data Protection Regulation (GDPR) in the EU and mainland China's Cybersecurity Law, Personal Information Protection Law (PIPL), and Data Security Law (DSL). In particular, the GDPR additionally mandates "data protection by design and default," and mainland China's Cybersecurity Law, PIPL, and DSL are well integrated with cyberspace sovereignty, national security, social and public interests, national sovereignty, and development interests of the state. In summary, in principle, the legal framework in the small jurisdiction Macao governing the legal risks associated with HCI is by and large in line with those in major and substantially larger jurisdictions. Notwithstanding, the former is in general a general miniature of the latter and comparatively devoid of express provisions very specific to and comprehensively covering HCI design. Subject to further research's confirmation, this phenomenon of generalization and miniaturization may be true of many other small jurisdictions worldwide as reasoned in this article.

Keywords: Legal risks, Human-computer interface design, Comparative study, Macao, Major jurisdictions

INTRODUCTION

Human-computer interface (HCI) design is at least as essential as any aspects else of almost all modern technology developments, as long as the developments involve whatever interaction between humans and computers. In fact, HCI design has been one of the key determinants of most technology developments' success or failure for decades (Chao, 2009). Nonetheless, HCI design can pose legal risks that may result in substantive legal liabilities (e.g., in the forms of damages claims, criminal law penalties, etc.) for any organizations adopting the HCIs as well as its staff personally. Even leaving aside legal liabilities, any legal litigations or lawsuits anywhere worldwide arising out of any incidents and disputes could themselves be a formidable burden on the organizations concerned and its staff in terms of financial costs and time (Jackson, 2009). In fact, whenever it comes to the feasibility and thus risks of any project, be it for technology development, HCI design, or otherwise, there are five key dimensions, namely, technical, economic/financial, legal, operational, and scheduling (Mukherjee and Roy, 2017). Being one of the five key dimensions, the legal feasibility and thus risks can never be disparaged. In short, for HCI design and virtually all projects in society, legal feasibility and risks are at least as important as technical, economic/financial, operational, and scheduling feasibility and thus risks.

This article begins by introducing Macao's geography, governance, and legal system before delineating the major categories of legal risks confronting HCI design in the small jurisdiction Macao and some major jurisdictions around the globe and the legal frameworks in these jurisdictions in respect of these major categories of legal risks. Although these major categories are identified as intellectual property (IP), privacy and personal data protection, accessibility, liability for harm, and cybersecurity breaches, only the first two are to be delved into in this article due to its length limitation. The aforementioned major jurisdictions include the United States, the European Union (EU), and China (mainland). Here, China (mainland) or mainland China is a common term that refers to the geographical region under the direct governance of the People's Republic of China but not including Hong Kong, Macao, or Taiwan (Kong, 2016) and is used for convenience in this article to discuss HCI design and legal risks but not politics in the slightest. In particular, from an HCI design practitioner's (i.e., an HCI designer's) standpoint instead of a traditional comparative law researcher's viewpoint, the article pinpoints the comparison and the contrast of the two major categories of legal risks, i.e., IP and privacy and personal data protection between Macao as an epitome of small jurisdictions and the aforesaid major jurisdictions. The key legal statutes and acts relevant to these two categories of legal risks as they concern HCI designers are quoted, the statutes' and acts' highlights, the related remedies and penalties for breaches, and probably other details are illuminated. In addition, the article draws on not only these statutes and acts but also academic literature. Finally, this article concludes with a summary of the findings from the comparison and the contrast.

Despite the recent international atmosphere of de-globalization, HCI design has long been regarded as intrinsically international and

cross-jurisdiction given that the HCIs of most products, be they consumer products (e.g., mobile phones, personal computers, software, etc.) or industrial/professional products (e.g., measurement instruments), are commonly sold and used around the world. It would be all too provincial for HCI designers to confine their attention solely to the laws in the jurisdictions of the designers' own headquarters. In consideration of this need of HCI designers, on top of being an academic treatise, this article doubles as guidelines and a checklist for HCI designers to mitigate legal risks generically in most major jurisdictions worldwide as well as some small jurisdictions as exemplified by Macao.

MACAO

Macao, also spelled Macau, is a special administrative region (SAR) of China, lying on the southern coast of the country. Its population is approximately 694,400 people, who inhabit an area of 33 square kilometers. In view of a high degree of autonomy, the SAR's political status in China is distinctive but not absolutely unique because of its resemblance to the substantially larger and more notable SAR Hong Kong. Whereas it is part of China, Macao runs its own legal system, government, and economy. The enclave's political leader is the Chief Executive, who is appointed by the Chinese central government in Beijing. All these characterizing arrangements are again almost the same as those of Hong Kong. (Britannica Academic, 2023; CIA, 2023) Macao's economy is highly developed, with emphasis on tourism and gambling and to a lesser extent the financial sector (Government Information Bureau of the Macao SAR, 2023a). Macao's legal system used to be inherited from Portuguese law, but has been gradually integrated with Chinese law in recent years, though the legal system is still independent from that in mainland China. In particular, the SAR operates its own courts and employs its own judges (Government Information Bureau of the Macao SAR, 2023b).

Macao is highlighted in the article not only because the author is with a university there but also because the enclave is a quintessentially small jurisdiction/economy concomitantly with technological resources not comparable to major jurisdictions/economies elsewhere. Any findings from the SAR are likely to typify those from many other small jurisdictions to some extent and can thus act as an analogy for HCI designers to appreciate the legal risks underlying HCI design in probably quite some small jurisdictions akin to Macao.

INTELLECTUAL PROPERTY

Macao

Macao's IP framework is primarily governed by the Industrial Property Code: Decree-Law no. 97/99/M of 13 December (Macao Special Administrative Region, 1999a) and the Decree-Law No. 43/99/M of August 16, 1999: Copyright Law (Macao Special Administrative Region, 1999b). The Industrial Property Code covers patents, trademarks, and industrial designs, while the

Copyright Law deals with original works of authorship. The Industrial Property Code and the Copyright Law both provide for civil and criminal remedies for infringement. Civil remedies could be injunctions, damages, and account of profits, while criminal remedies could be fines and imprisonment.

HCIs may be protected as industrial designs in Macao if they meet the requirements of novelty and uniqueness. However, the author is not aware of very specific provisions for the protection of HCIs as a distinct class in Macao's IP framework.

United States

In the United States, HCIs can be protected through various IP rights, including patents, copyrights, and trade secrets. By virtue of Title 35: Patents (U.S. Government Publishing Office, 2023), utility patents protect the way an article is used and works, including those of computer software and hardware (Legal Information Institute, 2023a), while design patents protect ornamental designs for articles of manufacture. HCIs may be eligible for design patent protection if they are novel, nonobvious, and have an ornamental design (United States Patent and Trademark Office, 2023a; Legal Information Institute, 2023b). Civil remedies for infringement on patents include injunctions, damages, and account of profits.

Copyright protection extends to original works of authorship, including computer software and Graphical User Interfaces (GUIs as a kind of HCIs). HCIs may be protected by copyright if they meet the requirements of originality and fixation in a tangible medium (United States Copyright Office, 2023). Civil remedies for infringement include injunctions, damages, and account of profits, while criminal remedies include fines and imprisonment.

Trade secret protection can also apply to HCIs if they are kept secret and have economic value as per the Economic Espionage Act of 1996 and the Defend Trade Secrets Act of 2016. Civil remedies include damages, court costs, reasonable attorneys' fees, and a permanent injunction, if warranted, whilst criminal remedies include imprisonment and/or fines (United States Patent and Trademark Office, 2023b).

European Union

The EU's IP framework includes the Council Regulation (EC) No 6/2002 of 12 December 2001 on Community designs (European Parliament and Council, 2023a), which provides protection for registered and unregistered community designs. Legal remedies for breaching the Regulation concentrate on prohibiting the illegal act, seizing all products of the illegal act, and seizing materials and implements to manufacture such products. HCIs may be eligible for protection as registered community designs if they have novelty and individual character (European Parliament and Council, 2023a).

Copyright protection in the EU applies to original works of authorship, including computer programs and GUIs, under the Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs (European Parliament and Council, 2023b) and the Directive 2001/29/EC of the European Parliament and of the Council

of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society (European Parliament and Council, 2023c). They provide for civil remedies, such as injunctions, damages, and account of profits, and criminal penalties, such as fines and imprisonment.

HCI design can be protected through a combination of copyright and community design rights in the EU.

Mainland China

Mainland China's IP law includes the Patent Law and the Copyright Law. Legal remedies for breaching the Patent Law include compensation for damages, account of profits, ceasing the infringement, and fines may be imposed, whereas legal remedies for breaching the Copyright Law include ceasing the infringement, eliminating the bad effects of the act, making an apology, or paying compensation for damages. (National People's Congress of the People's Republic of China, 2023a; National People's Congress of the People's Republic of China, 2023b).

HCIs may be protected as design patents under the Patent Law if they are novel (China IPR SME Helpdesk, 2015). The Copyright Law protects original works of authorship, and HCIs may be eligible for protection as works of applied art or software.

In addition, IP in mainland China is covered by the Law of the People's Republic of China against Unfair Competition. The Law against Unfair Competition provides protection against unauthorized use of trade secrets, including those of HCIs, if they have economic value and practical utility, and are kept secret. Legal remedies for breaching the Law include ceasing the illegal acts and, and a fine may be imposed by the administration. (National People's Congress of the People's Republic of China, 2023c).

Comparison

Macao's IP framework is all in all in accord with those in the United States, the EU, and mainland China. Nonetheless, the former seems general and not keen on tailoring itself to the specifics of various technological disciplines, be it HCI design or otherwise. Hence, the SAR only tends to protect HCIs in almost the same way as it protects most other products, technologies, and even artistic works across the board. This contrasts with the law in the United States, the EU, and mainland China where there are provisions quite specifically applicable to HCIs.

PRIVACY AND PERSONAL DATA PROTECTION

Macao

Macao's main personal data protection law is the Act 8/2005: Personal Data Protection Act (PDPA) (Macao Special Administrative Region, 2023). This law covers the collection, processing, and transfer of personal data, and it applies to both public and private entities. HCI designers must comply with this law when designing HCIs that involve the collection and processing of

personal data, for example, in computer software. Failure to comply can result in fines, civil damages, and other penalties.

United States

In the United States, there is no comprehensive, overarching federal personal data protection law. Instead, various sector-specific laws govern privacy and personal data protection, including the Health Insurance Portability and Accountability Act of 1996 (HIPAA) (Centers for Disease Control and Prevention, 2023) and the Children's Online Privacy Protection Act of 1998, 15 U.S.C. 6501–6505: Children's Privacy (COPPA) (U.S. Federal Trade Commission, 2023). HCI designers are compelled to study and conform to the laws applicable to the sectors or industries that the HCIs concerned are to work for.

The California Consumer Privacy Act of 2018 (CCPA) (State of California, 2023; State of California Department of Justice, 2023) is a state-level law that provides comprehensive personal data protection rights for California residents. Violation is conducive to civil damages as per Section 1798.150 of the Act and fines as per Section 1798.155 of the Act (State of California Department of Justice, 2023). HCI designers operating in California or targeting California residents must comply with the CCPA's requirements.

European Union

Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (i.e., General Data Protection Regulation or GDPR) (European Parliament and Council, 2023d) is a comprehensive personal data protection law that applies to all EU member states and organizations that process the personal data of EU residents. The GDPR sets out various rights for individuals and obligations for organizations, including the requirement to design products and services with privacy in mind, also known as "data protection by design and default" pursuant to Article 25 of the Regulation (European Parliament and Council, 2023d). HCI design is no exception and is obliged to adhere to such a principle whenever person data is involved, for example, in the case of computer software's HCIs. Failing that, HCI designers are subject to civil remedies, such as injunctions, damages, and account of profits, and criminal penalties, such as fines and imprisonment.

Mainland China

Mainland China's personal data protection framework is governed by the Cybersecurity Law (e.g., Articles 22, 41-43, 64, and 73) (Stanford University, 2023), the Personal Information Protection Law (PIPL) (National People's Congress of the People's Republic of China, 2023d), and the Data Security Law of the People's Republic of China (DSL) (National People's Congress of the People's Republic of China, 2023e). Whilst the Cybersecurity law only tangentially touches on personal data/information, the PIPL and the DSL, which came into effect in 2021, establish comprehensive data protection

standards and obligations for organizations that process personal information and critical data. In general, violating these laws can lead to warnings, fines, confiscation of gains, suspension of operations, business, permits, and licences, the violation being recorded in credit files and made public, other sanctions, civil liabilities (damages, tort, etc.), public security administrative penalties, criminal responsibilities, and/or bans on persons-in-charge from entities' management, as appropriate.

Comparison

On the one hand, Macao's privacy and personal data protection framework of PDPA is consistent in principle with but less comprehensive than the GDPR of the EU and mainland China's law trio comprising the Cybersecurity Law, the PIPL, and the DSL. For example, unlike the EU's GDPR, Macao's PDPA does not explicitly require "data protection by design and default," whether in the discipline of HCI design or otherwise. Also, Macao's PDPA is not integrated with cyberspace sovereignty, national security, social and public interests, national sovereignty, and development interests as much as mainland China's law trio. On the other hand, the privacy and personal data protection in the United States seem more fragmented and decentralized than Macao, the EU and mainland China, and are relatively locale and sector-specific and less overarching.

There is one commonality between the CCPA of California in the United States, the GDPR of the EU, and the PIPL and the DSL of mainland China. It is that they are extraterritorial to a certain extent, even if probably not literally so, in that these laws' applicability is not confined to restrictive cases where both the personal data processing and the person whose data is processed are physically located in the corresponding laws' own jurisdictions. In particular, the CCPA applies to any for-profit entity that does business in California pursuant to Section 1798.140(d) of the Act (State of California, 2023) and any person who is a California resident whether or not his/her personal data is processed in California (State of California Department of Justice, 2023). Likewise, the GDPR is also applicable to organizations that process the personal data of the EU residents whether or not the process is in the EU pursuant to Article 3 of the Regulation (European Parliament and Council, 2023d). Similarly, the PIPL of mainland China is also applicable to personal information processing outside of mainland China if the information is about persons within mainland China pursuant to Article 3 of the Law (National People's Congress of the People's Republic of China, 2023d). The DSL of mainland China also applies to data processing that harms national security, public interests, or the lawful rights and interests of individuals or organizations of mainland China even if the data processing is outside of mainland China pursuant to Article 2 of the Law (National People's Congress of the People's Republic of China, 2023e). The implication for HCI design is that any HCIs involving personal data and/or otherwise critical data must conform to the personal data/information laws and data security laws of all jurisdictions in which the products or services incorporating the HCIs are to be marketed, leased, subscribed, sold, and/or otherwise

used. Such compliance in multiple jurisdictions is the usual necessary case of most modern, international technological products and services. In contrast, Macao appears to be an exception in that such extra-territorial effectiveness to the extent of the corresponding laws' practices in major jurisdictions is not expressly stipulated in the SAR's PDPA, so its confinement to local effectiveness may be presumed. This is conceivable in the sense that small jurisdictions like Macao do not possess the global clout and leverage to enforce any law beyond their borders.

CONCLUSION AND DISCUSSION

By and large, Macao's legal regime with respect to HCI design, probably typical of those in many small jurisdictions, is in line with those of many major and presumably much larger jurisdictions at least for the risk categories of IP and privacy and personal data protection. Notwithstanding, there are a few nuances worth noticing.

First, most likely owing to its small economy, Macao does not possess the economies of scale to justify incorporating provisions very specific to HCI design or any other technological disciplines into its IP law, leaving its IP framework rather generic vis-à-vis those of the United States, the EU, and mainland China. The odds are that such a tendency toward law generality is true of not only Macao but also most small economies with inadequate economies of scale, albeit this conjecture is subject to further research.

Second, Macao's privacy and personal data protection framework is less compendious than the counterparts of the EU and mainland China. For example, the SAR does not expressly mandate "data protection by design and default," whether in the discipline of HCI design or otherwise. Also, the SAR does not integrate privacy and personal data protection with cyberspace sovereignty, national security, social and public interests, national sovereignty, and development interests as much as mainland China. In all likelihood, the prime foci of many small jurisdictions like Macao are their economies and local livelihood.

Third, extraterritorial effectiveness is very common in jurisdictions' privacy and personal data protection legislations with Macao's PDPA being an exception, so international HCI designers need to bother much less about the Act than the corresponding legislations elsewhere. Again, probably, such exceptions are true of many other small jurisdictions' corresponding laws in consideration of their relatively inferior capability to enforce law outside of their territories in comparison with major jurisdictions.

As for the remaining three primary risk categories of HCI design, namely, accessibility, liability for harm, and cybersecurity breaches, they are left to the author's future publications in view of this article's length limit.

Finally, it is necessary to profess the disclaimer that whereas this article may serve as practical guidelines or a checklist for HCI designers to mitigate legal risks globally, formal consultation with appropriate legal professionals of the corresponding jurisdictions is strongly recommended in the face of whatever specific legal risks.

REFERENCES

Britannica Academic (2023). Macau. Britannica Academic Website: https://academic.eb.com/levels/collegiate/article/Macau/49619

Centers for Disease Control and Prevention. (2023) Health Insurance Portability and Accountability Act of 1996 (HIPAA). Centers for Disease Control and Prevention Website: https://www.cdc.gov/phlp/publications/topic/hipaa.html

Chao, G. (2009) "Human-computer interaction: process and principles of human-computer interface design", proceedings of the 2009 International Conference on Computer and Automation Engineering, Bangkok, Thailand. Website: https://ieeexplore.ieee.org/abstract/document/4804523?casa_token=we7_bnWSoPAAAAAA: AAfo1qaBtLyE9ry6qJrkcn9H9kAu9GtB3_8qSW-VirlphYJgyKZ3n8pIQ5YMHJX2Zz5aXFq5VUdqVN8

China IPR SME Helpdesk. (2015) Understanding and Using China's Design Patent. China IPR SME Helpdesk Website: https://intellectual-property-helpdesk.ec.europa.eu/system/files/2020-10/China_IPR_SME_Helpdesk-Design_Patent_Guide.pdf

CIA (2023). The World Factbook: Macau. CIA Website: https://www.cia.gov/the-world-factbook/countries/macau/

European Parliament and Council. (2023a) Council Regulation (EC) No 6/2002 of 12 December 2001 on Community designs. Official Journal of the European Union, L 003, 1–24. European Parliament and Council Website: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32002R0006

European Parliament and Council. (2023b) Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs. Official Journal of the European Communities, L 111, 16–22. European Parliament and Council Website: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0024

European Parliament and Council. (2023c) Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society. Official Journal of the European Communities, L 167, 10–19. European Parliament and Council Website: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32001L0029

European Parliament and Council. (2023d) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). Official Journal of the European Union, L 119, 1–88. Website: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679

Government Information Bureau of the Macao SAR (2023a). Macao Fact Sheet: Economy. Government Information Bureau Website: https://www.gcs.gov.mo/news/factSheet/en;jsessionid=A72536BD928585B2CB66F49130059680.app09?0

Government Information Bureau of the Macao SAR (2023b). Macao Fact Sheet: Legal and Judicial System. Government Information Bureau Website: https://www.gcs.gov.mo/news/factSheet/en;jsessionid=A72536BD928585B2CB66F49130059680.app09?0

Jackson, Rupert M. (2009) Review of Civil Litigation Costs: Final Report. Richmond, Surrey: Ministry of Justice, United Kingdom. Website: https://www.judiciary.uk/wp-content/uploads/JCO/Documents/Reports/jackson-final-report-140110.pdf

Kong, Kaishan. (2016) Handbook of Research on Study Abroad Programs and Outbound Mobility, IGI Global. Website: https://www.doi.org/10.4018/978-1-5225-0169-5.ch028 or https://www.igi-global.com/dictionary/mainland-china/56247

Legal Information Institute. (2023a) Utility Patent. Cornell Law School Website: https://www.law.cornell.edu/wex/utility_patent#:~:text=A%20utility%20patent%20protects%20the,applications%20can%20have%20multiple%20claims

Legal Information Institute. (2023b) Design Patent. Cornell Law School Website: https://www.law.cornell.edu/wex/design_patent

Macao Special Administrative Region. (1999a). Industrial Property Code: Decree-Law no. 97/99/M of 13 December. Macao SAR Government Website: https://bo.io.gov.mo/bo/i/99/50/codrjpien/declei97.asp

Macao Special Administrative Region. (1999b). Decree-Law No. 43/99/M of August 16, 1999: Copyright Law. Macao SAR Government Website: https://bo.io.gov.mo/bo/i/99/33/declei43_en.asp

Macao Special Administrative Region. (2023). Act 8/2005: Personal Data Protection Act. Macao SAR Government Website: https://www.gpdp.gov.mo/file/Laws%20and%20Regulations/%E5%80%8B%E4%BA%BA%E8%B3%87%E6%96%99%E4%BF%9D%E8%AD%B7%E6%B3%95_EN.pdf

Mukherjee, M. and Roy, S. (2017) Feasibility Studies and Important Aspect of Project Management, INTERNATIONAL JOURNAL OF ADVANCED ENGINEERING AND MANAGEMENT Volume 2, No. 4. Website: https://ijoaem.org/00204-25

National People's Congress of the People's Republic of China. (2023a) Patent Law of the People's Republic of China. National People's Congress of the People's Republic of China Website: https://www.npc.gov.cn/zgrdw/englishnpc/Law/2007-12/13/content_1383992.htm

National People's Congress of the People's Republic of China. (2023b) Copyright Law of People's Republic of China. National People's Congress of the People's Republic of China Website: https://www.npc.gov.cn/zgrdw/englishnpc/Law/2007-12/12/content_1383888.htm

National People's Congress of the People's Republic of China. (2023c) Law of the People's Republic of China against Unfair Competition. National People's Congress of the People's Republic of China Website: https://www.npc.gov.cn/zgrdw/englishnpc/Law/2007-12/12/content_1383803.htm

National People's Congress of the People's Republic of China. (2023d) Personal Information Protection Law of the People's Republic of China. National People's Congress of the People's Republic of China Website: http://en.npc.gov.cn.cdurl.cn/2021-12/29/c_694559.htm#:~:text=Article%2010%20No%20organization%20or,national%20security%20or%20harm%20public

National People's Congress of the People's Republic of China. (2023e) Data Security Law of the People's Republic of China. National People's Congress of the People's Republic of China Website: https://www.npc.gov.cn/englishnpc/c23934/202112/1abd8829788946ecab270e469b13c39c.shtml

Stanford University. (2023) Translation: Cybersecurity Law of the People's Republic of China. Stanford University Website: https://digichina.stanford.edu/work/translation-cybersecurity-law-of-the-peoples-republic-of-china-effective-june-1-2017/

State of California Department of Justice. (2023) California Consumer Privacy Act (CCPA). State of California Department of Justice Website: https://oag.ca.gov/privacy/ccpa

State of California. (2023) California Consumer Privacy Act of 2018. State of California Website: https://cppa.ca.gov/regulations/pdf/cppa_act.pdf

U. S. Federal Trade Commission (2023). Children's Online Privacy Protection Act of 1998, 15 U. S. C. 6501–6505: Children's Privacy. U. S. Federal Trade Commission Website: https://www.ftc.gov/legal-library/browse/rules/childrens-online-privacy-protection-rule-coppa

U. S. Government Publishing Office. (2023) Title 35—Patents. U. S. Government Publishing Office Website: https://www.govinfo.gov/content/pkg/USCODE-2011-title35/html/USCODE-2011-title35.htm

United States Copyright Office. (2023) Copyright in General. United States Copyright Office Website: https://www.copyright.gov/help/faq/faq-general.html

United States Patent and Trademark Office. (2023a) Design patent application guide. United States Patent and Trademark Office Website: https://www.uspto.gov/patents/basics/apply/design-patent

United States Patent and Trademark Office. (2023b) Trade secrets / regulatory data protection. United States Patent and Trademark Office Website: https://www.uspto.gov/ip-policy/trade-secret-policy