The Ethiopian Tort Law Vis-a-Vis Constantly Evolving Technology: An Empirical Analysis of Cyberspace and Product Defects Tort Liability.[⇓]

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Abstract

Book IV, Title XIII, of the 1960 Ethiopian Civil Code governs the three categories of tortious liability—fault-based liability, strict liability, and vicarious liability—and the quantum and modalities of compensation. This law has existed for the last seven decades without significant revision. Consequently, one might hypothesize that Ethiopia's vast majority of tortious liability provisions must be more responsive to contemporary development. Hence, there are efforts to incorporate tort provisions in different legislations of the country, including the 1995 FDRE constitution, the 2005 FDRE Criminal Code, the Computer Crime Proclamation No. 958/2016, the Freedom of the Mass Media, and the Access to Information Proclamation No. 590/2008 (as amended by the Media Proclamation No. 1238/2021). Despite this, legal scholarship still needs to give tort law issues the proper attention they deserve. There needs to be more research outputs and a comprehensive analysis of Ethiopian tort law. Evidence-based research and recommendations in addressing the gaps in tort law contribute to

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policymakers addressing existing problems and serve as input to the revision of Book VI-Title XII of Ethiopia's Civil Code of 1960 on extra-contractual liability. Accordingly, this study attempts to show the legal loopholes in Ethiopian tort law regarding cyberspace torts and product liability as a case study. A triangulation of doctrinal and empirical qualitative research approaches is employed for data collection. The researchers employed document analysis, desk review, and semi-structured interviews with the relevant stakeholders to collect primary data. The researchers consulted relevant books, journals, periodicals, reports, and newspapers as secondary data sources. The finding shows that the 1960 Ethiopian Civil Code needs to be updated to administer tort liabilities caused by cyberspace and product liability. Concerning cyberspace torts, it fails to regulate online gambling and defamation, pop-up advertising, cybersquatting, spamming, and other cybers mearing tortious liabilities. By now, cryptocurrencies in Ethiopia are operating in the gray area of the law, which results in tortious liability. It needs careful revision to regulate product defects arising from 3D printing and autonomous driving. Therefore, the study recommends reforming the existing tort law in Ethiopia to bring it up to date with emerging developments such as cyberspace torts and product defects.

Keywords: Civil Code; Compensation; Cyber Security; Product Liability; Tort Law.

Introduction

Tort law is strictly required to reflect the social, economic, and political culture of the state where it originated.[1] That is why continuous reform of tort

[1]John Goldberg et al., Tort Law: Responsibilities and Redress, ASPEN Publishers, 2004, P.40

law is the history of the developed world, especially since the 2nd half of the 20th century.[2] Historically, before the development of a comprehensive and detailed automobile liability law, courts were mechanically extending "horse and buggy law" to the automobile industry.[3] However, the rise of new technology requires courts to stretch traditional tort doctrines and create updated torts to keep pace with new civil wrongs.[4] For example, there was a lengthy "legal lag" between the widespread adoption of the new technology and the development of modern product liability, e.g., in the automobile industry.[5]

Moreover, we live in an interconnected, global digital society where the service of different operating systems is universal. The internet, including well-known websites and social media platforms such as Facebook, Twitter, Wikipedia, and YouTube, is the prime medium for communication worldwide.[6] The rapid assimilation of the internet in today's era creates maladjustments between technology and tort law.[7] The globally networked world has created new civil wrongs such as cyberpiracy, online gambling, pop-up advertising, cybersquatting[8], spamming, tarnishment through linking[9],

[2] Id., P.39.
[3] Richard M. Nixon, Changing Rules of Liability in Automobile Accident Litigation, Law and Contemporary Problems, Vol.3, 1936, P.476.
[4] Michael L. Rustad & Thomas H. Koenig, Cybertorts and Legal Lag: An Empirical Analysis, Sothern California Interdisciplinary Law Journal, Vol.13, No.1, p.77 [Hereinafter called Michael L. Rustad & Thomas H. Koenig].
[5] Id., p.78.
[6] Shakila Bu-Pasha, Cross-Border Issues Under E.U. Data Protection Law regarding Personal Data Protection, Journal of Information and Communications Technology Law, Vol.26, No.3, P.1.
[7] Michael L. Rustad & Thomas H. Koenig, *supra* note 4, p.78.
[8] "Cybersquatting" refers to the bad faith, abusive registration, and use of the distinctive trademarks of others as Internet domain names with the intent to profit from the goodwill associated with those trademarks.
[9] An example of "tarnishment through linking" is enjoining an entertainment site from using someone's trademarks as its Internet domain name.

cybersmearing[10], and dot.org hate websites for which effective legal remedies are only beginning to evolve.[11]

Furthermore, autonomous systems increasingly influence today's globalized human world.[12] Autonomous vehicles are already on the market, or they are getting closer to being deployed on public roads for the public[13]; it is tested on public roads in several countries on a large scale[14]; it has been replacing the human driver with an artificial entity.[15] Autonomous vehicles are becoming more self-reliant and independent of humans; they can park themselves with minimal human intervention, prevent accidents, and drive themselves on marketed roads with almost no human involvement.[16]

Also, the global community is a witness to some of the most dramatic and disruptive technological shifts, such as 3D printing. The 3D printing industry has dramatically expanded in the past few years, presenting a role model for growth that other industries may want to follow.[17] In principle, everything is

[10] "Cybersmearing" refers to an anonymous or pseudo-anonymous defamation on the Internet.

[11] Michael L. Rustad & Thomas H. Koenig, *supra* note 4, p.80.

[12] Ruth Janal, Extra-Contractual Liability for Wrongs Committed by Autonomous Systems, pp.174-205, In Martin Ebers & Susana Navas (Eds), Algorithms and Law, Cambridge University Press, 2020, available at https://www.cambridge.org/core. [Last accessed April 12, 2022].

[13] Nynke E. Vellinga, Legal Aspects of Automated Driving: On Drivers, Producers, and PublicAuthorities, Ph.D. Dissertation, the Universityof Groningen, 2020, available at available at https://www.rug.nl/research/portal/publications/legal-aspects-of-automated-driving(4459304c-deb4-43df-99a8- 7a677ea69530)/export.html [Last accessed April 12, 2022].. [Here in after called Nynke E. Vellinga].

[14] Id..

[15] Hin-Yan Liu, Irresponsibility, inequalities, and injustice for autonomous vehicles, Ethics Inf. Technol,Vol. 19, 2017, pp.193–207.

[16] Kyle Colonna, Autonomous Cars and Tort Liability, Journal of Law, Technology & the Internet, Vol.4, No.4,2012, pp.81-130.

[17] Samuel Alemu, 3D Printing and How it can Revolutionize Manufacturing, the Reporter, January 26, 2019, p.1[Hereinafter called Samuel Alemu].

3D printable such as consumer goods, medical devices, musical instruments, cars and car parts, and human organs. 3D printing is a disruptive innovation that is changing the landscape of business models in the manufacturing sector. 3D printers are currently available for commercial and home use. The consumer can now be a manufacturer and a retailer. A person can purchase the 3D printer, and through their skills, or the purchase or gift of a computer-assisted design file, they can now create their products for personal use or resale.[18]

In Ethiopia, 3D printing can change the face of manufacturing and provide a space for meeting the industrial production needs of Ethiopian consumers, companies, and organizations. It promises to turn Ethiopia into Africa's manufacturing hub.[19] Ethiopia is already using 3D printers for various purposes, mainly in the aerospace and automotive industries. The Boeing 787 Dreamliner Ethiopian has thirty 3D printed parts, but Boeing plans to use more 3D printed features in its aircraft. As of 2014, it has already printed over 22,000 parts for its various products. The other aircraft owned by Ethiopian Air lines, the Airbus A350 XWB, has one thousand 3D printed features. Designers of the Airbus are aiming towards printing the entire plane in one go at the press of the print button.[20]

The objective of this study is to examine whether or not the Ethiopian tort law governs cyber torts and product defects in line with the developments in the contemporary world. Specifically, this study tries to address the question: Are there any new developments in tort law that demand reform in the existing tort law, notably concerning cyberspace torts and product liability? How can

[18] Jane Nielsen And Lynden Griggs: Allocating Risk and Liability for Defective 3d Printed Products: Product Safety, Negligence, or Something New? *Monash University Law Review*, Vol 42, No 3, p.1.

[19] Samuel Alemu, *supra* note 17.

[20] See Hailemichael T. Demissie: From Manufacturing Service: Ethiopian Airlines Verging Towards 3D printing, the Reporter, August 13, 2016, p.1.

they be effectively incorporated into Ethiopian tort law? Accordingly, it will contribute to the revision of Book IV,Title XIII, of Ethiopia's 1960 Civil Code of on Extra-contractual Liability, which has been in place for the last seven decades without significant revision.

Methodologically, both doctrinal and empirical qualitative research approaches are employed. The researchers used semi-structured interviews with judges, advocates, public prosecutors, selected legal professionals from the Ethiopian Ministry of Transport, experts from some selected Ethiopian Insurance Companies, and legal experts from the Ethiopian Artificial Intelligence Authority. In addition, the researchers consulted relevant books, journals, periodicals, reports, and newspapers as secondary data sources. And content analysis techniques were employed depending on the research objectives and questions.

Structurally, the study has two parts: part one deals with cyberspace torts,and part two deals with product liability. Finally, there is a section on concluding remarks.

1. Cyberspace Tort

1.1 Meaning and Nature

In our daily lives, we entrust our personal data to various businesses to use their service or purchase from them. We submit our personal profiles to online service providers by signing up for their websites or transferring payment card data by swiping a card, inserting it into a chip slot, or paying online, in the belief that the data are securely processed. In multi-sided markets, the firms monetize the data to recover costs incurred in providing a free service or to increase profit.Some of them, however, maintain "lax security practices" such as improper managerial control, insufficient access control, absence of data encryption, and failure to install anti-malware

software or security updates.[21] These vulnerabilities increase the risk of data breaches such as unauthorized network intrusion, malware infection, theft or loss of storage media, or an insider's intentional or mistaken disclosure.[22] These data breaches may cause harm to users.

Before describing the tortious liabilities of cyber security and data security, we first need to differentiate "data security" from cyber security, which are often conflated. Data security is just one element of the broader concept of data privacy, which also relates to the collection, use, and disclosure of personal data in addition to its secure storage. Data security is not quite the same thing as cyber security either. Data security protects the personal information held by an entity, and cybersecurity protects the network's infrastructure..[23] The latter is best understood to include the integrity of the network itself and the prevention of problems like distributed denial of service attacks[24] or deployment of ransomware such as the "WannaCry bug."[25] These concepts may overlap in some cases, such as the use of a zero-day exploit to steal personal data. In other scenarios, such as a hacker deleting company documents that contain no personal data (cybersecurity only) or the theft of

[21]Sangchul Park, 'why information security law has been ineffective in addressing security vulnerabilities: Evidence from California data breach notifications and relevant court and government records', *International Review of Law and Economics,* 2019, PP.132-142, P.133[Here in after, Sangchl Park, why information security law has been ineffective in addressing security vulnerabilities]

[22] Id.

[23]Financial Industry Regulatory Authority, Report on Cybersecurity Practices (2015) available at http://www.finra.org/sites/default/files/p602363%20Report%20on%20Cybersecurity%. , [last accessed April 12, 2022] [Here in after, FINRA REPORT 2015].

[24] These typically are attacks that use botnets to overwhelm servers with traffic until they cannot function. Kim Zetter, "Hacker Lexicon: What Are DoS and DDoS Attacks?", https://www.wired.com/2016/01. [Last accessed April 12, 2022]

[25]Ian Sherr, "WannaCry Ransomware: Everything You Need to Know, CNET", available at https://wwwcnet.com/news/. [Last accessed April 12, 2022].

paper files containing personal information (data security only), they remain entirely distinct..[26]

In Ethiopia, over the course of years, a host of cyberattacks have been perpetrated on several financial institutions and other Ethiopian companies.[27] These cyberattacks appear to be indicative of a broader trend: the frequency and ferocity of cyberattacks are increasing, posing grave risks and damaging to cyber security and personal data security.[28] Thus, affected data should be subject to recovery as long as damage- amount to economic losses or emotional distress resulting from the breach. And database possessors must do anything, between the time of the breach and the moment of harm, to minimize their exposure to tort liability.

The newly emerging development Bitcoin & cryptocurrency that was created in January 2009, unlike fiat currency, is created, distributed, traded, and stored with the use of a decentralized ledger system, known as the blockchain. Cryptocurrency has its predecessors: electronic money, virtual currency, and digital currency. There is a tendency to confuse terminology among scientists: use these terms interchangeably, define one term using the other one, or describe the correlation of terms improperly. E.g., Chris Ross claims that digital currency is a form of virtual currency[29], overlooking features of virtual

[26]Edward R. McNicholas and Vivek K. Mohan, *An Introduction to the Law of Cyber Risk in Cybersecurity: A Practical Guide to The Law of Cyber Risk* 1st ed., UNKNO,2015, PP.1-14[Here in after CYBERSECURITY: A PRACTICAL GUIDE].

[27]Interview with Dawit Gebre Amannuel, CEO at Ethiopian Reinsurance S.C, on selling insurance services for newly emerging technologies to compensate tortious liability due to cyber-attack, March 29, 2022 [Here in after, Dawit, CEO]

[28]Id.

[29]Chris Rose, 'The Evolution of Digital Currencies: Bitcoin, A Cryptocurrency Causing a Monetary Revolution', online, *International Business & Economics Research Journal (IBER)*, Vol. 14, No, 4, Para., 617, available at https://www.researchgate.net/publication/297750676. [Last accessed May 6, 2022]

and digital currencies, therefore confusing the correlation between the two terms.

According to the European Central Bank, electronic money is broadly defined as an electronic store of monetary value on a technical device that may be widely used for making payments to entities other than the e-money issuer. The device acts as a prepaid bearer instrument which does not necessarily involve bank accounts in transactions. Electronic-money products can be hardware-based or software-based, depending on the technology used to store the monetary value.[30] Thus, electronic money means electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions, and which is accepted by a natural or legal person other than the e-money issuer.[31]

According to the European Banking Authority, virtual currency is a digital representation of value that is neither issued by a central bank or public authority nor necessarily attached to a fiat (conventional) currency but is accepted by natural or legal persons as a means of exchange and can be transferred, stored, or traded electronically.[32] The digital currency as a broad

[30]European Central Bank "Electronic Money, available at",,https://www.ecb.europa.eu/stats/money_credit_banking/electronic_money/html/index.en.html. [last accessed April 10, 2022] [Here in after, European Central Bank "Electronic Money,]

[31]Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC (Text with EEA relevance)," https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0110. [Last accessed April 10, 2022]S

[32]"European Banking Authority Opinion on 'virtual currencies'", available at https://eba.europa.eu/sites/default/documents/files/documents/10180/657547/81409b94422245d7ba3b7deb5863ab57/EBA-Op-2014-08%20Opinion%20on%20Virtual%20Currencies.pdf?retry. [last accessed June 17, 2022]

term can contain anything that digitally represents value. Digital currency includes e-money: money that is simply a digital representation of government-issued fiat currency. Digital currency can also cover virtual currency.

The takeaway from definitions given by the European Banking Authority [33], European Central Bank [34], International Monetary Fund[35], Committee on Payments and Market Infrastructures, a body of the Bank for International Settlements[36], the World Bank[37] and other institutions is that cryptocurrencies are a subset of virtual currencies. Then, the term 'virtual currencies' is defined as a "type of crypto assets, which is a digital representation of value that is neither issued by a central bank or a public authority nor necessarily attached to a fiat currency but is used by national or legal persons as a means of exchange and can be transferred, stored, or traded electronically.[38]

Again, the newly emerging, Bitcoin-a digital currency may cause tortious liability. All things considered, cryptocurrency platforms or other service providers may be held liable for cryptocurrencies' thefts or other customers' losses that occurred due to the breach of care.

[33] Id.

[34] "Virtual Currency Schemes," available at https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf. (last accessed on May 23, 2002]

[35] Dong He et al., "IMF Staff Discussion Note. Virtual Currencies and Beyond: Initial Considerations" (Washington, DC: International Monetary Fund, January 2016): 7, available at https://www.imf.org/external/pubs/ft/sdn/2016/sdn1603.pdf. [Last accessed May 6, 2022]

[36] "Digital currencies" (Basel: Bank for International Settlements, November 2015): available at https://www.bis.org/cpmi/publ/d137.pdf. [Last accessed May 6,2022]

[37] Harish Natarajan et al., "FinTech note, no. 1: Distributed Ledger Technology (DLT) and blockchain", available at http://documents.worldbank.org/curated/en/177911513714062215/pdf/122140. [Last accessed May 6, 2022]

[38] European Central Bank "Electronic Money", *supra* 10

2.2 Cyberspace Tort under Ethiopian Tort Law

While Ethiopia is a state party to key international human rights treaties that guarantee the right to privacy, such as the International Covenant on Civil and Political Rights (ICCPR), it is yet to accede to any of the data protection instruments including, the Africa Union (AU) Convention on Cyber Security and Personal Data Protection (Malabo Convention).[39]

Ethiopia has laws that relate and deal directly or indirectly with cyber security and personal data security, including the 1995 Constitution of the Federal Democratic Republic of Ethiopia[40], the 2005 Criminal Code of the Federal Democratic Republic of Ethiopia[41], the 1960 Civil Code[42], the Computer Crime Proclamation No. 958/2016[43], Freedom of the Mass Media, and Access to Information Proclamation No. 590/2008 (as amended by the Media Proclamation No. 1238/2021)[44].

However, Ethiopia does not have a single and comprehensive legal instrument regulating cyber security and personal data protection. The draft Personal Data Protection Proclamation unveiled by the government in April

[39] African Union Convention on Cyber Security and personal data protection, 2014, Recalling Decision Assembly/AU/Decl.1(XIV)[Here in after, the Malabo Convention, 2014]

[40] Federal Constitution of Ethiopia, 1995, Federal Negarit gaz., Proc. No. 1, 1st year, No. 1, [Here in after, FDRE Constitution, 1995].

[41] The Criminal Code of the Federal Democratic Republic of Ethiopia, 2004, Federal Negarit gaz., Proc. No. 414, year 9, No. 34, [Here in after, The Criminal Code of the Federal Democratic Republic of Ethiopia, 2004].

[42] Civil Code of The Empire of Ethiopia, 1960, Negarit Gazzet, extraordinary issue, Proc. No. 165, , 19th year, No'.2, [Here in after, Civil Code, 1960]

[43] Computer Crime Proclamation, 2016, Negarit Gazzet, Proc. No 958, year 22, No 83[Here in after, Computer Crime Proclamation, 958]

[44] Freedom of the Mass Media, and Access to Information Proclamation, 2008, Negarit Gazzet, Proc. No. 590, year 14 No 64 (as amended by the Media Proclamation No. 1238/2021) [Here in after, Freedom of the Mass Media, and Access to Information Proclamation, 2008]

2020[45], considers salient features of the bill, including key definitions, data subject rights, conditions for lawful processing, relevant exemptions in the public interest, data breach notification requirements and the transfer of personal data across borders, as well as provisions governing the proposed national data protection authority, the data protection commissioner.[46]

The Ethiopia's Data Protection Proclamation conforms by and large to international best practices, including the Malabo Convention, the African Declaration on Internet Rights and Freedoms and the Declaration of Principles on Freedom of Expression and Access to Information in Africa. But Ethiopia's performance in ensuring respect for and protecting privacy and data protection is yet to be closely reviewed by international mechanisms, including by relevant treaty bodies and Human Rights Council's Universal Periodic Review (UPR). It shall be considered the extent to which non-governmental organizations are involved in privacy and data protection. Because privacy and data protection have, up until now, generally received little policy or societal attention in Ethiopia, such organizations are yet to flourish.

As cryptocurrency usage increases, so too do cryptocurrency regulations around the world that are put in place to govern them. The crypto landscape is constantly evolving and keeping up to date with the rules in different global territories isn't easy. While it is difficult to find a consistent legal approach at the state level, the US continues to progress in developing federal cryptocurrency legislation.[47] The Financial Crimes Enforcement Network (FinCEN) does not consider cryptocurrencies to be legal tender but

[45] Ethiopia's Data Protection Proclamation (draft), April, 2020.
[46] Id.
[47] Cryptocurrency Regulations Around The World, Available at https://complyadvantage.com/insights/cryptocurrency-regulations-around-world/. [last accessed May 24, 2022]

considers cryptocurrency exchanges to be money transmitters on the basis that cryptocurrency tokens are "other value that substitutes for currency."[48]

Cryptocurrency exchange regulations in South Korea are strict and involve government registration and other measures overseen by the South Korean Financial Supervisory Service (FSS). Although a rumored ban never materialized, in 2017 the South Korean government prohibited the use of anonymous accounts in cryptocurrency trading and banned local financial institutes from hosting trades of Bitcoin futures. Similarly, the Financial Services Commission (FSC) imposes strict reporting obligations on banks with accounts held by crypto exchanges.[49]

Although the Ethiopian Government has enacted a Proclamation on Prevention and Suppression of Money Laundering and the Financing of Terrorism, Proc. No' 657/2009, to prevent any "suspicious transaction" which means "a transaction which is inconsistent with a customer's known legitimate business or personal activities or with the normal business for that type of account or business relationship, or a complex, strange and unusual transaction or complex or unusual pattern of transaction"[50], we can understand, from the entire reading of the proclamation, that this prevention is restricted to transactions by "fiat money".

[48] Id.

[49] Korean Watchdog Tightens Rules on Crypto Exchange Bank Accounts, available at https://www.coindesk.com/markets/2018/06/27/korean-watchdog-tightens-rules-on-crypto-exchange-bank-accounts/. [last accessed May 24, 2022]

[50] Proclamation on Prevention and Suppression of Money Laundering and the Financing of Terrorism, 2009, Negarit Gazzet, Proc. No. 657, year 16, No 1, Article 2/14. [Here in after, Proclamation on Prevention and Suppression of Money Laundering and the Financing of Terrorism, 2009]

The National Bank of Ethiopia has issued a directive which obliges financial institutions to know their customer in enhanced and due diligence practices, including the introduction of a proper risk mitigation mechanism that enables them to effectively combat illegal and authorized transactions being operated through their infrastructure and platform in a manner that preventing shadow banking, which is critical to ensure proper identification of customers, appropriate assessment, and monitoring of transaction.[51] This directive is again restricted to prevent any shadow banking transaction by "fiat money". However, there is no any rule that regulates transactions of cryptocurrency though some practices of the cryptocurrency market have materialized in Ethiopia.

2.2.1 Cyber Security, Personal Data Security, Crypto Currency, and Tort Liability

Whether and to what extent courts hold database possessors liable for damages caused by improper data access are questions of huge importance.[52] Unless courts impose some form of liability, the persons often in the best position to prevent the losses caused by identity theft may have insufficient incentive to exercise care to avoid unnecessary harm. Despite the recent enactment of Computer Crime Proclamation, No. 958/2016[53] and Electronic Transaction Proclamation No' 1205/2020,[54] in Ethiopia, the laws governing the tortous liability of a data possessor and/or administrator is unsettled. For

[51] Licensing and Supervision of the Business of Financial Institutions, Requirements for Undertaking Accounts Based Transaction and Ensuring of Regulatory Limits Directive, National Bank Ethiopia, August 2021.

[52] Vincent R. Johnson, 'Data Security and Tort Liability', Journal of Internet Law, 2008, Vol.22, PP.22-31, P.22 [Here in after, Vincent R. Johnson, Data Security and Tort Liability].

[53] Computer Crime Proclamation, 958, *supra* note. 43.

[54] Electronic Transaction Proclamation, 2020, Federal Negarit gaz., Proc. No. 1205, year 26, No. 57, [Here in after, The Electronic Transaction Proclamation, 2020].

instance, the Ethiopian Civil Code, 1960[55] has been outdated to administer tort liabilities caused by online gambling and defamation, pop-up adverting, cybersquatting, spamming, cybers mearing tortious liabilities.

In considering this field of tort law, it is useful to differentiate three questions. The first issue is whether database possessors have a legal duty to safeguard data subjects' personal information from unauthorized access by hackers or others. Such obligations may be imposed by statutes, ordinary tort principles, or fiduciary duty law[56]. The second issue concerns not whether there is a duty to protect computerized information from intruders, but whether a database possessor has a legal obligation to disclose evidence of a security breach to data subjects once an intrusion occurs. The third issue is how far liability

[55] Civil Code, 1960, *supra* note 42.

[56] A person who has a fiduciary relationship with another person commits a tort when he or she breaches his or her fiduciary duty to the other person. The other person is entitled to damages from the fiduciary if he or she sustains damages because of the fiduciary's breach of his or her duty. A fiduciary relationship occurs between two persons when one person has a duty to act for the other person or has a duty to give advice for the benefit of the other person. Examples of fiduciaries include agents, personal representatives, trustees, guardians, or financial and legal advisors, such as attorneys, stockbrokers, or accountants. A fiduciary who breaches his or her duty to another person is liable only to the other person. He or she is not liable to third parties unless he or she owed a duty to the third parties.

A person who assists a fiduciary in breaching his or her duty to another person may be liable for the fiduciary's breach of duty. However, that person's liability is based upon the harm that was caused to the other person and not upon his or her breach of duty to the other person. A tort action for violation of a fiduciary duty may be brought in a court of law or in a court of equity. If the action is brought in a court of law, the person who was harmed by the violation may be entitled to compensatory or punitive damages. If the action is brought in a court of equity, the person may be entitled to an injunction or an accounting from the fiduciary. The person may further be entitled to restitution from the fiduciary, which restitution may consist of the profits that the fiduciary made because of his or her breach of duty. Examples of violations of a fiduciary duty include a bank's disclosure of its customer's financial information, a trustee's mismanagement of an estate, or an attorney's disclosure of a client's privileged information.

should extend when the database possessor has failed to exercise reasonable care to protect data or to disclose information about an intrusion.

A. *Duty to Safeguard Cyber and Personal Data Security*

A statute may impose a duty to exercise care to protect data from intruders. An important example is California's Security Breach Information Act (SBIA)[57]. The California SBIA imposes a data protection obligation and expressly authorizes maintenance of a suit for damages caused by a breach of that duty.

The relevant language, which became effective July 1, 2003, states:

"A business that owns or licenses personal information about a California resident shall implement and maintain reasonable security procedures and practices appropriate to the nature of the information, to protect the personal information from unauthorized access, destruction, use, modification, or disclosure".[58] The legislation further provides that "any customer injured by a violation of this title may institute a civil action to recover damages".[59]

The SBIA leaves no doubt that businesses owe a duty under California law to protect customers' personal information and that customers may recover damages if businesses breach that duty.

Aside from statutes, ordinary tort law principles support judicial recognition of a database possessor's duty to safeguard information from intruders. Even if courts decline to impose a tort duty to safeguard data on database

57 An act to amend, renumber, and add Section 1798.82 of, and to add Section 1798.29 to, the Civil Code, relating to personal information, 2003, LEGISLATIVE COUNSEL'S DIGEST, senate Bill No 1386, Chapter 915[Here in after, The Act, 2003].

58 Id.

59 Id.

possessors generally (or at least on businesses), voluntary assumption of duty principles may create a legally enforceable data-protection obligation.[60] A person not otherwise under a duty to exercise reasonable care may voluntarily assume the responsibility to do so. One way of assuming this duty is by promising to exercise care and thereby inducing detrimental reliance. Another way is by "undertaking to render services" and consequently increasing the risk of harm to the plaintiff. Either way, the party that undertook the duty of reasonable care will be subject to liability if it breaches the voluntarily assumed duty and causes damages. These well-established principles may apply when consumers reveal personal information to financial institutions in reliance on financial institutions' stated privacy policies.

If a database possessor owes fiduciary obligations to a data subject, it is reasonable to argue that regardless of whether general tort principles would impose a duty, the fiduciary is obliged to protect computerized information relating to the data subject from unauthorized access by third parties. For example, the relationship between an attorney and client is fiduciary as a matter of law. Accordingly, lawyers have a special obligation to protect confidential client information, aside from any demands imposed by ordinary tort principles. A lawyer's broad fiduciary obligation of confidentiality extends to all forms of information about the client, including computerized data, for the existence of the duty turns on the content, not the form, of the information.[61] In light of the fiduciary duty rules on confidentiality (and the related obligations requiring safekeeping of client property), a lawyer or law firm could not plausibly argue that there is no duty to safeguard computerized

[60]Bank of America, Privacy Policy for Consumers, available at http://www.bankofamerica.com/privacy/index.cfm?template=privacysecur_cnsmr. (Last accessed May 02, 2022).

[61]David Hricik, 'The Speed of Normal: Conflicts, Competency, and Confidentiality in the Digital Age', *Computer L. Rev. & Tech. Journal*, 2005, Vol.10, P. 73[Here in after, David Hricik, The Speed of Normal: Conflicts, Competency, and Confidentiality in the Digital Age]

client data from intruders. Indeed, the duty of safekeeping may even impose an obligation to encrypt sensitive information.[62] The same analysis should apply to all fiduciary relationships.

However, ordinary business relationships are not fiduciary. In business, parties normally deal with one another at arm's length. The "mere acceptance of confidential information" does not create a fiduciary relationship, nor does the fact that one party "trusts another and relies on a promise to carry out a contract." Consequently, while fiduciary-duty law may play an important role in determining whether professionals, such as lawyers, physicians, or trustees, have a duty to protect the information of clients, patients, and beneficiaries from intruders, it will not set the standard of care in most commercial settings.[63]

B. Duty to Reveal Security Breaches

All USA States have enacted security breach information acts that require certain types of database possessors (typically businesses, but sometimes governmental agencies or other persons or entities, such as non-profit organizations) to notify data subjects of violations (or possible violations) of their information's security. States impose notification obligations and expressly authorize a civil action for damages.[64]

A variety of means are used to enforce the notification obligation, such as administrative or civil fines or an action by the attorney general to recover "direct economic damages" or to remedy deceptive trade practices.[65] Security

[62] Vincent R. Johnson, Data Security and Tort Liability, *supra* note 52.
[63] Id..
[64] Charles E. Cantu, 'An Essay on the Tort of Negligent Infliction of Emotional Distress in Texas: Stop Saying It Does Not Exist'," *St. Mary's L.J*., 2002, Vol. 33, PP. 455-468, PP.465-468.
[65] Id.

breach notification laws or data breach notification laws are laws that require individuals or entities affected by a data breach, or unauthorized access to data, to notify their customers and other parties about the breach, as well as take specific steps to remedy the situation based on the state legislature.

Data breach notification laws have two main goals.[66] The first goal is to allow individuals a chance to mitigate risks against data breaches.[67] The second goal is to promote company incentives to strengthen data security. Together, these goals work to minimize consumer harm from data breaches, including impersonation, fraud, and identity theft.[68]

C. Compensation for Security Breaches

Modern society is built on the fragile foundations of computerized personal data. If this society is to endure and prosper, then it must vigilantly safeguard those foundations. Tort law offers an appropriate legal regime for allocating the risks and spreading the costs of database intrusion-related losses. Tort law can also create incentives, on the part of both database possessors and data subjects, to minimize the harm associated with breaches of database security.

Courts and legislatures must carefully consider the role of tort liability in protecting computerized data. If those who make and interpret the laws too hastily conclude that database possessors are not liable for losses occasioned by unauthorized data access, whether because there is no duty, no proximate causation, or no recoverable damages, important opportunities to reduce and distribute the costs of computerized technology will be lost. If liability is too readily assessed, important institutions will be adversely affected, and with them, the prosperity of modern society. Security in insecure times requires a

[66] General Data Protection Regulation, available at https://www.gdprsummary.com/gdpr-summary/, [Last accessed May 30, 2022]
[67] Id.
[68] Id.

sensitive balancing of competing interests. Established tort principles carefully applied to the contemporary problems of cybersecurity and identity theft can perform a key role in protecting the economic foundations of modern life.

2.2.2 Cyber Security, Personal Data Security, and Crypto Currency under the Ethiopian Civil Code

A question here is whether the Ethiopian Civil Codeof the 1960has provided provisions dealing with the duty to protect cyber and personal data security, the duty to disclose any material facts of cyber and personal data security breaches, and compensation awarded to victims of such breaches. And again, whether the Ethiopian Civil Code, 1960 has any provision about the cryptocurrency market to enable any victim to claim, tort liability arising from cryptocurrency market transactions.

Principles of liability for fault are of general application. A person is, as a rule, always liable if the damage caused by him is due to his fault. Liability to fault is not restricted to cases provided for by law, while strict liability from harm caused by certain things or activities and vicarious liability for acts of others exist only "where the law so provides".

The Ethiopian Civil Code is not up to date to compensate damages caused by three tiers of organizations surrounding a firm's security practices, which include:

(i) an intra-firm organization (a firm exercises managerial control over the behaviors of its officers, employees, and contractors who manage information system assets),[69]

[69]Park, Sangchul, 'Reforming data protection law: an approach based on the concept of data ownership', *Korean J. Law Econ.*, 2018, Vol. 15, No. 2, PP. 259–278, P.

(ii) a firm's contractual relationship with customers or employees (a firm safeguards personal data that the individuals entrust under explicit or implied contracts),[70] and

(iii) inter-firm security chains (multiple firms form a security chain where the security practice of one firm affects that of another).[71]

These tiers of organizations pose a challenging problem of externalities that inherits in security chains.[72] An externality causes firms to produce more vulnerabilities, a kind of "bad" or harm than are socially desirable. An externality involves a situation in which separate property rights held by different persons collide, but things are different in ordinary information security problems; the personal data that a firm possesses are nothing other than what the individuals entrusted.[73] It is comparable to a warehouse person's custody of properties or directors' management of corporate assets.

Yet, what can have a more profound impact on a firm's unobserved behaviors and their payoffs is an appropriate legal remedy, which Book IV-Title III of the Ethiopian Civil Code has failed to address, provided for the customers or employees who entrusted their personal data to the firm but were injured by data breach incidents. Thus, to address the tort liability, the legal relationship between the individuals and the firm should be empowered to implement effective governance over the firm's hidden behavior. It happens when the firm's obligation to safeguard personal data is well grounded on a solid legal theory, regardless of whether it is formally based on contract, bailment, fiduciary duty, or any other kind of duty of care. The remedy should be

264[Park, Sangchul, 'Reforming data protection law: an approach based on the concept of data ownership].

[70]Id.

[71]Id.

[72] Id.

[73] Id.

extended to the firm's service providers or vendors, as well as a third-party transferee of personal data, based on an appropriate legal theory.

Lawyers argue that the Ethiopian Civil Codehas a provision, i.e., Article 2035 which stipulates: *"a person commits an offence where he infringes any specific and explicit provision of a law, decree or administrative regulation*" [74]; and *"ignorance of the law is no excuse*"[75], to redress any civil liability caused and in connection with cyber and personal data security. Although there is no tort law that deals with tortious liability of cyber security and personal data security in black and white, in contemporary Ethiopia, there have been Proclamations issued by the House of Peoples Representatives, Regulations enacted by the Council of Ministers and Directives to be issued by respective Ministries or governmental authorities.[76] These are federal laws. There are also state legislations enacted by state councils.[77] So, article 2035 should be read in line with these context.[78] For example, the breach the Computer Crime proclamation i.e. (a) committing a crime against a computer, computer system, computer data or computer network; (b) committing a conventional crime by means of a computer, computer system, computer data or computer network; or (c) illegally disseminating computer content data through a computer, computer system, or computer network[79] is, if harm ensues, for instance, equally redressable in tort except in the case of laws

[74] Civil Code, 1960, *supra* note 44, Art. 2035(1).
[75] Id, Art. 2035(2).
[76] Interview with Serkalem Tesfaye, Cyber Law Researcher at Information Network Security Agency of Ethiopia, on Whether Ethiopian Tort Law has addressed the newly emerging technologies related risks and casualty, March 29, 2022
[77] Interview with Hana Teshome, Team Leader of Legal Drafting at Information Network Security Agency of Ethiopia, on Whether an amendment of Ethiopian Tort law is required to address the newly emerging technologies related risks and casualty [Here in after, Interview with Hana Teshome]. March 29, 2022
[78] Id.
[79] Computer Crime Proclamation, 958, *supra* note 43 , Art. 2(1)

providing their own sanctions which by implication exclude distinct tort remedies.

However, the above justification may not give a complete answer to the question of whether the Ethiopian Tort Law has provisions to redress damages in connection with cyber security and personal data security. Because Article 2035, in its uniquely sweeping formulation, supplies a civil liability for the whole legal system of Ethiopia. Ethiopian Tort Law is, therefore, to a certain extent, not an independent branch of law, but a sanction of all other laws.[80] The legislator obviates the possibility of a restrictive interpretation of "law" to mean [The Civil Code] only, by adding the words "specific and explicit provision of law", "decree" and "administrative regulation" which terms are wide enough to cover in addition to the Civil Code or other enactments from House of People Representatives to the most minute administrative regulations.[81] Thus, with respect to the qualification of the provisions infringed, this article makes no difference between, for instance, Criminal Code and Computer Crime Proclamation, or any other substantive and procedural laws.[82]

For infringement of law to amount automatically to a fault, the provision allegedly infringed must be specific and explicit (clear) enough. But the more the level of generality of legal provisions rise, the more the automatic applicability of this article to an infringement of law become debatable. No doubt the Criminal Code and Computer Crime Proclamation contain provisions concrete enough for an infringement to be deemed a fault under article 2035; however, this cannot be always true because the provisions are

[80]George Krzeczunowicz, *The Ethiopian Law of Extra-Contractual Liability*, Haile Selassie I University, Addis Ababa, Ethiopia, P. 102[Here in after, George Krzeczunowicz, The Ethiopian Law of Extra-Contractual Liability]
[81]Id.
[82]Interview with Hana Teshome, *supra* note 77.

vague that they are open to conflicting interpretations.[83] with fault. Book IV,Title III, of the Ethiopian Civil Code has no provisions regarding tort liability issues in the crypto sphere and any tort law has not been yet enacted. In this case, the following problems arise:

i. to bring a claim to the court, the claimant should identify the defendant. Usually, the claimant may be an ordinary person that does not know much about the software development process. Moreover, identification of the coder whose programming code possibly produced the error requires substantial resources and/or permission from authorities to request needed information from third parties. Right this day, such power only belongs to judges, prosecutors, detectives, or intelligence agencies and they use it to fight crimes. No regular person possesses such power, thus, the instruments available for claimants for finding the wrongdoer and bringing him to court are inefficient.

ii. In a very unlikely scenario, an injured party may find the coder who supposedly caused the damage. The truth is that people often remain anonymous on the web. The biggest platform for code storing and code management where e.g., the source code of Bitcoin stored – "GitHub3800" – does not have proper Know-Your-Customer policies as payment and financial institutions have. No analogous platforms adhere to such policies because it was not needed at the time. Therefore, except for a nickname, email, and other un useful information for the injured party, the platform cannot give any relevant information to the potential claimant regarding the wrongdoer's identity.

[83]George Krzeczunowicz, The Ethiopian Law of Extra-Contractual Liability, *supra* note 80, P. 104.

iii. Another problem is application dependencies (development and production)-external libraries and frameworks written by other developers that were used for program creation. Those libraries, not the code written by program creators, may cause an error. Identification of a responsible person in such a case is very difficult or merely impossible.

Cryptocurrency-related companies owe a duty of care to their platform users and thus are liable for the breach of such duty. Contrastingly, independent coders that contribute to the open-source software do not owe a duty of care to the software users, thus not liable for code errors in the tort of negligence. So, not only injured parties should prove the existence of a duty of care, its breach by a defendant but also justify that exactly this breach caused the damage. Due to the high technicality of cryptocurrency claims, it would be merely impossible to find out, evaluate the causality, and prove this statement in court by applying this outdated Ethiopian Tort Law.

The breach of duty of care occurs when one party behaves in an unreasonable manner in case foreseeable damages to the other.[84] Usually, the "test of a reasonable person" is used in the evaluation of defendants' behavior. However, if we take into consideration the actors of cryptocurrency relations (coders, cryptocurrency platforms' staff, miners), this test is not sufficient because involved people almost always have special and even professional knowledge or skills. Thus, a test of "the ordinary skilled person in the same area", first mentioned in ***Bolam v Friern Hospital Management Committee***[85] should apply. When the damage arises from the glitch in the

[84]Iryna Arkhypchenko, Theoretical and Legal Perspective of Civil Liability in Cryptocurrency Relations, Master Thesis, Shevchenko National University of Kyiv, 2020, [unpublished, available at https://vb.mruni.eu/object/elaba:64874799/] P. 64

[85]Jenny Steele, *Tort Law: Text, Cases, and Materials*, Oxford University Press, Oxford, 2017, P. 129. Facts of the case: -The defendant was the body who employed a doctor who had not given a mentally ill patient (the claimant) muscle-relaxant drugs nor

program it is possible to assess the reasonableness of a coder's actions/omissions or evaluate some management decision that caused the damage using the test of 'the ordinary skilled person in the same area.

Book IV-Title III of the 1960 Ethiopian Civil Code, however, has not adopted the "the ordinary skilled person in the same area" test to compensate for any tortious liability caused by cryptocurrency transactions.

2. Is the Ethiopian Tort Law Responsive to Product Defects Associated with Autonomous Vehicles and 3D Printing?

The machines are here, but the law is not *~~~~~ Ed Walters, Fastcase CEO*

The concept of product defects is broad. A product defect is any characteristic of a product that hinders its usability for the purpose it was designed and manufactured. Product defects arise most prominently in legal contexts regarding product safety, where the term is applied to anything that renders the product not reasonably safe. However, the scope of this paper is limited to

restrained them prior to giving them electro-convulsive therapy. The claimant suffered injuries during the procedure. The claimant sued the defendant, claiming the doctor was negligent for not restraining them or giving them the drug; Issue of the case: - Establishing the tort of negligence involves establishing that the defendant breached their duty of care to the claimant. To establish breach, the claimant must establish that the defendant failed to act as a reasonable person would in their position. This standard is higher in the case of professionals: they must act as a reasonable professional would. The issue in this case was how to assess the standard of care imposed on a professional defendant where a substantial portion of professionals opposed a particular practice, while others did not; Decision of the court: The High Court held that the doctor had not breached his duty to the patient, and so the defendant was not liable. McNair J set out the test for determining the standard of care owed by medical professionals to their patients (sometimes referred to as the 'Bolam test'). The professional will not be in breach of their duty of care if they acted in a manner which was in accordance with practices accepted as proper by a responsible body of other medical professionals with expertise in that area. If this is established, it does not matter that there are others with expertise who would disagree with the practice.

only two types of product defects related to autonomous vehicles and 3D Printing. Thus, following a brief conceptual explanation, this section assesses the responsiveness of the Ethiopian Tort Law towards tortious actions arising from autonomous driving and 3D Printing.

2.1. Overview of Product Defects in General

There are three broad classifications of product defects.

a) Manufacturing Defects

Manufacturing defects are the most common and obvious type of product liability claim when the product that causes the injury was defectively manufactured. A product with a manufacturing defect is faulty because of a mistake in the manufacturing process.[86]

b) Design Defects

A design defect is a product's inherently dangerous or defective design. So, these types of product liability claims do not arise from some mistake during the manufacturing process but rather involve the claim that an entire line of products is inherently dangerous irrespective of the fact that the product that

[86] Here are some of the most common examples of manufacturing defects:
- *For example, an elevator with a defectively manufactured pulley system causes the car to collapse or fall, injuring passengers.*
- *A vehicle with a missing steering part causes a loss of vehicle control.*
- *A bicycle with a defectively manufactured steering bar causes the bicyclist to lose control.*
- *Children's jewellery or toys contain unacceptable levels of lead, which could be toxic*. For further information, see available at https://www.greenbergrubylaw.com/product-liability-case-examples.

caused made the injury perfectly according to the manufacturer's specifications.[87]

c) Failure to warn

Failure to warn is a claim that fails to provide adequate warnings or instructions about the product's proper use. These types of claims often involve a product that is dangerous in a way that is not apparent to consumers. In some cases, these include products that require consumers to use special precautions while using them.[88]

In Ethiopia, it is an everyday phenomenon for the community to experience product defects. For example, the Federal Police Commission report envisages that, since 2012/13, more than 3,000 people have died, and 6,000 people are injured each year due to RTA. Further, according to a 2018 WHO report, the number of road traffic deaths in the country has reached 4,352 people annually. Its rate remains high at around 27 deaths per 100,000

[87] Here are some of the most common examples of design defects:
- *For example, a pelvic mesh device disintegrates inside the body and damages internal organs because of its poor design.*
- *A poorly designed SUV rolls over when the driver takes a curve.*
- *A poorly designed coffee maker sprays hot liquid on users causing burn injuries.*
- *An inclined sleeper could cause children to suffocate due to defective design accidentally*. For further information, see available at https://www.greenbergrubylaw.com/product-liability-case-examples.

[88] Here are a few examples of situations that could result in a failure-to-warn claim:
- *Child car seats and booster seats should come with specific instructions about proper installation, failing which the seat may not adequately protect the child.*
- *A sleeping pill that does not include a warning that it may potentially cause dangerous side effects on its label.*
- *Toys that do not have warning labels, which could cause serious injuries*. For further information, see available at https://www.greenbergrubylaw.com/product-liability-case-examples.

population.[89] Among other things, poor conditions of the vehicles and technical inefficiency of the cars, i.e., production defects are the causes.

In this regard, the right to compensation of a victim who has suffered damage through using or consuming a defective product or exposure to a defective product is essential. Any producer of a defective movable must make good the damage caused to individuals' physical well-being or property.[90] For instance, a child injured by the explosion of a soft drink bottle, an employee who loses a finger by using a defective tool, or a pedestrian knocked down by a car with faulty brakes enjoy this right, whether or not there is negligence on the part of the producer. The legal framework should ensure the well-being of victims (by ensuring they are compensated and by discouraging the marketing of defective products) and of minimizing the costs to the industry to avoid excessive interference in their capacity for innovation, job creation, and exporting.[91]

Concerning product defects, Art. 2085 of the Civil Code deals as follows:

(1) A person who manufactures goods and sells them to the public for profit shall be liable for any damage to another person resulting from the normal use of the goods.

[89]WHO, Make Roads Safe: The Campaign for Global Road Safety United Nations Decade of Action for Road Safety 2011-2020, (2011), available at www.who.int/roadsafety/decade/of/action/plan/global/plan/decade.pdf

[90] Commission of the European Communities: Green Paper Liability for defective products, Directive 85/374/EEC, P.10, For further information, available at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:51999DC0396&from=EN.

[91] Id..

(2) No liability shall be incurred where the defect that caused the damage could have been discovered by a customary examination of the goods.[92]

From the above statements, we can discern that the Ethiopian civil Code recognizes only manufacturing defects. Is it the law's intention to leave the victim uncompensated for an injury incurred while using a defective product due to design defects or a failure to warn? We will see the details as follows.

2.2. Tort Liability for Damage Caused by Autonomous Vehicles

(i) Conceptual Overview of Autonomous Driving

Autonomous systems increasingly influence today's globalized human world. The driver will be replaced by a computerized system that will take over the driving task in the coming years or decades.[93] The term 'automated vehicle' is used for a vehicle that can ultimately drive itself without human interference. Autonomous vehicles are becoming more self-reliant and independent of humans; they can park themselves with minimal human intervention, prevent accidents, and drive themselves on marketed roads with almost no human involvement.[94]

[92] Civil Code, 1960, *supra* note 42, Art. 2085. Concerning abnormal product use, a scholar points out that, akin to other pills, tetracycline is to be consumed as doctors prescribe. However, tetracycline is sold and purchased like any other ordinary product in many rural areas. The purchaser does not swallow the pill; instead, he distracts it and puts it on wounded skin. This is a practical example of abnormal use. If the purchaser sustained damage by using tetracycline in such a way, the producer could not compensate him. Mehari Reade, Lecture Notes on the Ethiopian Tort Law, Addis Ababa University, School of Law, 2003-2007, PP.1-90[Here in after, Mehari Reade, Lecture Notes on the Ethiopian Tort Law].

93 Ruth Janal, Extra-Contractual Liability for Wrongs Committed by Autonomous Systems, pp.174-205, In Martin Ebers & Susana Navas (Eds), Algorithms and Law, Cambridge University Press, 2020, available at https://www.cambridge.org/core.

94 Kyle Colonna, Autonomous Cars and Tort Liability, *supra* note 16, pp.81-130.

The SAE (Society of Automotive Engineers) issued a standard on taxonomy and definitions concerning the capabilities of automated vehicles. The SAE distinguishes between six levels of automation, explaining which part of the dynamic driving task is performed by the human driver or the automated driving system.[95] For more clarification, see the following table from the Society of Automotive Engineers.[96]

level 0	no driving automation the human driver needs to perform the entire dynamic driving task
level 1	• driver assistance • a system can subtask the dynamic driving task, namely the longitudinal or lateral vehicle motion control. The driver performs the remainder of the dynamic driving task
level 2	• partial driving automation • a system serves both the longitudinal and lateral vehicle motion control while the driver performs the remainder of the dynamic driving task
level 3	• conditional driving automation • the automated driving system can perform the entire dynamic driving task within its operational design domain. The user is receptive to a request to intervene and can do so

[95] Id, P.15.

[96] SAE International, Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles. Standard J3016 (revised June 2018), pp.21-26. For further information, available at https://www.sae.org/standards/content/j3016_202104.

	promptly. He is expected to resume the performance of the dynamic driving task when requested.
level 4	• high driving automation • there is no longer an expectation that the user will resume the performance of the dynamic driving task when asked. The automated driving system performs the entire dynamic driving task within a specific operational design domain, for instance, on a highway. The automated driving system can achieve a minimal risk condition when necessary
level 5	• full driving automation • the automated driving system performs the entire dynamic driving task. So, the automated driving system no longer has a specific operational design domain in which it can function. The automated driving system can also achieve a minimal risk condition, and a user is not expected to intervene.

From the above table, we can discern that level 0 is not automation. Level 1 is driver assistance (the driver controls the vehicle but has to assist with features like blind spot detection). Level 2 is partial automation (the driver controls the vehicle, but the car has automated functions like automatic emergency braking). Level 3 is the vehicle can drive itself some, but the driver must be ready to re-take control (like self-park). Level 4 is the car can entirely go itself

under *certain conditions* (like highway autopilot). Finally, level 5 is the vehicle can drive itself *under all conditions.*[97]

(ii) The Likelihood of Deploying Autonomous Driving in the Market and the Potential Presence of Damage Arising from Autonomous Driving

Autonomous vehicles are already on the market, or they are getting closer to be deployed on roads for the public[98]; it is being tested on public roads in several countries on a large scale[99]; it has been replacing the human driver with an artificial entity.[100] Tests are taking place with, for instance, self-driving cars moving cargo or small buses bringing multiple people from a station to a hospital. In addition, cars can become mobile meeting rooms, hotel rooms, or even gyms. This is part of developments that offer everyone mobility and make travelling more accessible while reducing pollution and increasing road safety. Automated vehicles are expected to contribute to all these goals. For instance, by making a human driver superfluous, the automatic car could be used by people currently unable to drive (such as children and people with physical impairments).[101]

Regarding the potential damage arising from autonomous vehicles, although automated vehicles are expected to be safer than human drivers, they will not

[97]Nynke E. Vellinga, Legal Aspects of Automated Driving: On Drivers, Producers, and PublicAuthorities, *supra* note 13.

98 Id..

99 Id..

100 Hin-Yan Liu, Irresponsibilities, Inequalities, and Injustice for Autonomous Vehicles, Ethics Inf Technol, Vol.

19, 2017, pp.193–207.

101 Nynke E. Vellinga, Legal Aspects of Automated Driving: On Drivers, Producers, and PublicAuthorities, *supra* note, 13.

entirely avoid road accidents. For example, a self-driving car recently killed a pedestrian in Arizona, the USA.[102]

In Ethiopia, a vehicle with driver assistance (level 2) and partial driving automation (level 3) is already on the market. Furthermore, conditional driving automation (level 4) is expected to be on the market in the coming few years.[103] Currently partial-autonomous flying is started to be employed in the aviation industry.[104]

Consequently, legal questions regarding liability arose, including who is liable for damage caused by an automated vehicle. From tort law perspectives, different parties are involved: The user, owner, producer, fleet operator, and injured party. Likewise, you are cycling to the University when you get hit by a self-driving car. You are ok, but your bike is in pieces. From which party would you claim damages? From the user? producer? or owner? The following section speaks about these and other related legal questions.

(iii) Ethiopian Tort Law vis a vis Autonomous Vehicles

This section shows which aspect of automated vehicles differentiates them from normal cars regarding tortious liability. For example, in the presence of a producer, an owner, and a user, does the absence of a human driver create that much difficulty in establishing liability?

[102]Nathaniel Meyersohn, Matt McFarland, "Uber's Self-driving Car has Killed Someone. What happened?" *cnn.com*, money.cnn.com/2018/03/20/news/companies/self- driving-uber-death/index.html, Cited by Spencer C. Pittman and Mbilike Mwafulirwa: Not So Hypothetical After All: Addressing the Remaining Unanswered Questions About Self-Driving Cars, Oklahoma Bar Journal, Vol.90, 2019, p.36.

[103]Interview with two legal experts (anonymous), legal experts at the Ethiopian Road Authority, on whether an amendment of Ethiopian Tort law is required to address the newly emerging technologies related autonomous driving, March 28, 2022

[104] The recent Boing 737 MAX Ethiopian Airlines crash was due to system failure, failure in the Maneuvering Characteristics Augmentation System (MCAS), causing a fatal crash, in which 157 people died.

At the international level, the Geneva and Vienna Conventions are incompatible with automated driving. The notion of the driver within the 1949 Geneva Convention on Road Traffic and the 1968 Vienna Convention on Road Traffic does not accommodate automated driving. Within the meaning of these Conventions, a driver is a human who decides on the speed and direction by operating (some of) the vehicle's controls. As a result, fully autonomous driving (SAE Level 5 vehicle) is driverless within the meaning of these two Conventions.[105] Like the Geneva and Vienna Conventions, the Ethiopian civil Code assumes a driver is a human who decides on the speed and direction by operating the vehicle's controls.

Different lines of argument are forwarded regarding who is liable for the damage resulting from autonomous driving.

i. Owner

Art. 2081 of the Civil Code provides that an owner is strictly liable for a damage. It provides that the motor vehicle owner shall be liable for any damage caused by the vehicle, even if the damage was caused by a person not authorized to drive the vehicle. Moreover, Art. 2082 (1) provides that a person who has taken possession of the vehicle for personal gain shall be liable for any damage caused by the vehicle in his possession.

Some argue that since the civil Code establishes a strict liability of the car owner to compensate the victim, the same principle can be applied to autonomous driving. This means that the owner of self-driving cars will be held strictly liable for the damage.[106] However, in addition to victim

[105] See Art. 4 paragraph 1 Geneva Convention & Art. 1(V) of the Vienna Conventions.

[106] Interview with legal experts (anonymous), at the Ethiopian Road Authority, Federal High Court Judges, and Ministry of Justice, on whether an amendment of Ethiopian Tort law is required to address the newly emerging technologies related autonomous driving, March 28, 2022.

compensation, the owner of the car can control or mitigate the damage is the other justification for making the car owner strictly liable. So, it is not always justifiable to establish strict liability for the car's owner in the case of autonomous driving because it might be beyond the owner to control or mitigate the damage resulting from autonomous driving.

ii. Manufacturer

The other line of arguments is making the manufacturer liable for the damage resulting from autonomous vehicles.

As mentioned above, Art. 2085 (1) of the Civil Code provided that "*a person who manufactures goods and sells them to the public for profit shall be liable for any damage to another person resulting from the normal use of the goods*."[107] The manufacturer must sell the goods to the public for profit, and the damage must have come from regular use. Only profit-oriented manufacturers are liable under Art. 2085 of the Civil Code, i.e., the cost of doing business. The claimant cannot rely on this provision when the manufacturer distributes the product free of charge unless it is shown that he committed a fault. For example, suppose that a defective Covid-Vaccine is distributed to the public free of charge and sustained damage; the victim cannot sue the manufacturer per Art. 2085. The justification is that without fault, a manufacturer who gives the vaccine free of charge should not be strictly liable.

Moreover, "*who manufactures goods and sells them*" indicates that the manufacturers would directly deal with the consumer. However, the producer produces an item and directly sells it to the consumer bringing a contractual relationship between the two parties. The governing law will be the contract or consumer protection law, not the extra-contractual liability law.

[107] The Ethiopian Civil Code, *supra* note 43, Art. 2085 (1).

On the other note, Article 2085 (2) provides that no liability shall be incurred where the defect that caused the damage could have been discovered by a customary examination of the goods. Therefore, the consumer must customarily examine the thing to the extent his knowledge permits. One way of customarily examining the good is to thoroughly read and stick to the directions/instructions given by the manufacturer. Well-developed manufacturers give directions on how and when to use the product. However, the guides are usually written in English, and it might not be easy to understand the manufacturer's instructions.

In addition, Article 2086 (1) of the Civil Code provides that the persons declared legally liable for the manufactured goods (2085) "***may relieve"*** himself of the liability to the victim by proving that he has committed no offence, that it was impossible to establish the cause of the damage, or that it was not within his power to prevent the damage or that the damage was due to the fault of a third party.

However, the Amharic version provides that persons legally declared liable "***may not relieve"*** themselves by proving they did not commit a fault. As it is strict liability, no one can relieve himself of liability by proving that he was not at fault. Moreover, the law makes a person liable not because he committed fault but because his activity was dangerous and caused damage to another, or it was the object under his possession and from which he gained benefit that caused damage to another. Accordingly, the Amharic version expresses the true intention of the legislature.

Regarding manufacturer liability, the challenge is that the would-be autonomous vehicle that brings about damage will be an input of foreign companies, and the victims cannot proceed against the manufacturers in Europe, the USA, or elsewhere.

iii. Designer

As stated above, Art. 2085 of the Civil Code recognizes only manufacturing defects. It leaves the victim uncompensated when he uses a defective product due to design defects or a failure to warn. Some argue that most of the manufactured goods have been imported from abroad. We must care about the victim's interest since it would be difficult for the victim to prove the design defect and act against the designer. So, it is recommended to make the manufacturer liable to the victim in case of product defects, whether manufacturing or design defects. Once he has compensated the victim, the manufacturer will seek a remedy from the designer per their contractual relationship.[108] However, the manufacturer can quickly shift the burden of proof if the product is free from manufacturing defects but has design defects. As a policy maker, the legislative organ should also consider which party should take the responsibility, as always making the manufacturer liable to the victim might not achieve the desired policy goals, for example, deterring the wrongdoing.

iv. Joint and Several Liability of Manufacturer, Importer, Wholesaler & Retailer as per Consumer Protection Laws

Contract law and consumer protection laws may serve as a panacea to fill the gaps in tort law. When we see the contract law, the possible scenario is that the producer produces, for example, an autonomous vehicle and sells it to the whole seller; the wholesaler will again sell the purchased autonomous car to the retailer, and the retailer will sell it to the consumer. Under this chain of transactions, there is no contractual relationship between the producer and the consumer. The solution for such kinds of challenges will be the privity of contracts. Accordingly, the consumer will proceed against the retailer; the

[108] Interview with legal experts (anonymous), at the Ethiopian Road Authority, Federal High Court Judges, and Ministry of Justice, on whether an amendment of Ethiopian Tort law is required to address the newly emerging technologies related autonomous driving, March 28, 2022.

retailer will proceed against the whole seller; the wholesaler, on his part, will proceed against the producer.[109]

However, it is proved to be challenging to rely on the retailer because retailers are smallholders, they cannot compensate victims for the damage, and the retailers do not involve anything human as they deliver the product to the consumer as packed by the producer. Usually, the retailer is economically too weak to compensate the consumer. Therefore, so long as it is a civil case unless the defendant has a deeper pocket, the whole exercise of bringing an action will be useless. As a result, the privity of the contract will not be a solution for the liability arising from autonomous vehicles.

Alternatively, the Ethiopian competition and consumer protection laws may serve as a panacea to fill the gaps in tort law.[110] Art. 14 (5) of the Trade Competition and Consumers Protection Proclamation provides as follows:

Every consumer shall have the right to: claim compensation or related either jointly or severally from persons who have participated in the supply of goods or services as manufacturer, importer, wholesaler, retailer, or in any other way for damages he has suffered because of purchase or use of the goods or services.

Concerning defects in Goods and Services: Art. 20 of the Trade Competition and Consumers Protection Proclamation provides as follows:

1/ Any consumer may report defects in goods and services purchased and the damage the defects may cause to the Ministry or the relevant bureau.

[109] Id..
[110] Trade Competition and Consumers Protection Proclamation, FEDERAL NEGARIT GAZETTE, Proclamation No. 813/2013, Arts. 14-22.

2/ A consumer may, without prejudice to warranties or legal or contractual provisions more advantageous to him, demand the seller, within 15 days from the date of purchase:

a) in the case of defective goods, to replace the goods or refund the price paid; or

b) in the case of defective service, to re-deliver the service free of charge or to refund the fee paid.

3/ Any consumer shall have the right to claim, in accordance with the relevant laws, payment of compensation for any damage resulting from the use of the defective goods or service or from the failure of the seller to meet his demand presented pursuant to sub-article (2) of this article.

Given all that has been mentioned so far, one may suppose that product defect is not becoming an issue of contractual or extra-contractual liability but of consumer protection or public interest. Consumer protection laws may check whether the products being marketed to the public are up to the standard. In addition, inspecting the product or quality control may help us prevent possible risks associated with consuming a processed product.[111] Sometimes, despite quality control, we may not decidedly avoid the risk that may materialize through regular use. In such a case, the remedial scheme of the proclamation comes into the picture.[112]

[111] Trade Competition and Consumers Protection Proclamation, FEDERAL NEGARIT GAZETTE, Proclamation No. 813/2013, Arts. 14-22.

[112] Art. 14 (5) of the Trade Competition and Consumers Protection Proclamation provides as follows:

Every consumer shall have the right to: claim compensation or related either jointly or severally from persons who have participated in the supply of goods or services as manufacturer, importer, wholesaler, retailer, or in any other way for damages he has suffered because of purchase or use of the goods or services.

Therefore, as per Art. 14 (5) of the Trade Competition and Consumers Protection Proclamation, the injured party can claim compensation ***jointly or severally from the manufacturer, importer, wholesaler & retailer***.[113]

2.3. Tort Liability for Damage Caused by 3D Printing

(i) Conceptual Overview of 3D Printing

3D Printing is a process for making a physical real-world object from a virtual digital model. Items that have already been printed include human body parts, prosthetics, aircraft and automotive parts, medical devices and implants, guns, toys and the list is endless. In principle, everything is 3D printable.[114]

We are transforming from the two-dimensional world of printing/duplication to 3D-printed drugs, food products, hardware, and even biological organs.[115]

Concerning defects in Goods and Services: Art. 20 of the Trade Competition and Consumers Protection Proclamation provides as follows:

1/ Any consumer may report defects in goods and services purchased and the damage the defects may cause to the Ministry or the relevant bureau.

2/ A consumer may, without prejudice to warranties or legal or contractual provisions more advantageous to him, demand the seller, within 15 days from the date of purchase:

a) in the case of defective goods, to replace the goods or refund the price paid; or

b) in the case of defective service, to re-deliver the service free of charge or to refund the fee paid.

3/ Any consumer shall have the right to claim, under the relevant laws, payment of compensation for any damage resulting from the use of the defective goods or service or from the failure of the seller to meet his demand presented under sub-article (2) of this article.

[113] Art. 2085 of the Civil Code does not make the wholesale liable for selling a defective product. However, under the proclamation, the consumer can proceed against the whole seller, which is one of the gaps in tort law.

[114] https://www.acts-net.org/events/past-events/39-3d-printing-africa-s-development-the-3d-printing-revolution-and-ethiopia-s-unfinished-agenda-on-manufacturing

[115] Shardha Rajam & Adya Jha, 3D Printing - An Analysis of Liabilities and Potential Benefits within the Indian Legal Framework." NUJS Law Review, vol. 11, no. 3, 2018, pp. 361-393. p.1.

3D Printing is already becoming a significant industry with tremendous innovative potential for many applications, from dental and medical, to automotive, aerospace/aviation, toys, military, fashion, food, eyewear, and construction.[116]

With the adoption of 3D Printing, a product can be directly fabricated from a CAD file. This transformation lowers the production threshold, thus enabling ordinary people to engage in production activities, and drives consumers to take a proactive role in directing the production process by serving as the coordinators between CAD file designers and object fabricators.[117]

(ii) The Usage of 3D Printing in Ethiopia

In Ethiopia, 3D Printing has the potential to change the face of Ethiopian manufacturing sector and provide a space for meeting the industrial production needs of Ethiopian consumers, companies, and organizations. 3D Printing is a perfect investment for Ethiopian manufacturers that could become an alternative to costly, non-environmentally friendly manufacturing processes and imported spare parts. Ethiopia opened large industrial parks that would accommodate many jobs. 3D Printing could foster industrial manufacturing development in Ethiopia as the Federal and Regional governments invest and support industrial projects. It is an opportunity to

[116] James M. Beck & Matthew D. Jacobson: 3D Printing: What Could Happen to Products Liability When Users (and Everyone Else in between) Become Manufacturers." Minnesota Journal of Law, Science, and Technology, Vol. 18, no. 1, pp. 144 & 145; for further information, see at https://scholarship.law.umn.edu/cgi/viewcontent.cgi?article=1419&context=mjlst [Here in after called James M. Beck & Matthew D. Jacobson].

117 Shu Li, The Quest for Product Safety in the Context of 3D Printing: A Law and Economics Analysis, PhD. Dissertation, 2021, for further information, see https://www.eur.nl/en/events/phd-defence-s-shu-li-2021-02-12.

contribute to Ethiopia's economy. It is also a chance to help manufacturing companies improve the quality and reduce the costs of their products.[118]

The fate of manufacturing in Ethiopia and the rest of the developing world is increasingly tied to emerging technologies, particularly 3D Printing, which the Economist called 'the third industrial revolution'. In order to remain economically competitive, Ethiopia should accelerate the transition to high-value manufacturing by acquiring and developing capabilities in 3D printing technology.[119]

Ethiopia already uses 3D printers for various purposes, mainly in the aerospace and automotive industries. For example, the Boeing 787 Dreamliner Ethiopian owns has thirty 3D printed parts, but Boeing plans to use more 3D printed features in its aircraft. As of 2014, it has printed over 22,000 parts for its various products.[120]

However, Boeing's 737 Max suffered two fatal crashes, in 2018 and 2019, that was shown to be caused by a design flaw and led to a global grounding of the aircraft. The 737 MAX suffered a recurring failure in the Maneuvering Characteristics Augmentation System (MCAS), causing two fatal crashes, Lion Air Flight 610 and Ethiopian Airlines Flight 302, in which 346 people

[118] Samuel Alemu, 3D Printing and how it can revolutionize manufacturing, the reporter, January 26, 2019, accessible at https://www.thereporterethiopia.com/7328/.

[119] https://www.acts-net.org/events/past-events/39-3d-printing-africa-s-development-the-3d-printing-revolution-and-ethiopia-s-unfinished-agenda-on-manufacturing

[120] The other aircraft owned by Ethiopian, the Airbus A350 XWB, has one thousand 3D printed features. Airbus designers aim to print the entire plane in one go at the press of the print button. See Hailemichael T. Demissie: From manufacturing service: Ethiopian Airlines verging towards 3D Printing, the Reporter, August 13, 2016, p.1.

died in total.[121] Boeing has already paid substantial amounts ***voluntarily*** to compensate the families of the Lion Air 610 and Ethiopian Airlines 302 passengers. In addition, it may have contractual agreements with purchasers, including airlines and leasing companies, entitling them to compensation for losses due to product defects.[122] Let us suppose that Boing company refused to compensate the victim voluntarily. Then, would the company be held responsible as per tort law? The following section tries to address such kind of issues.

(iii) Ethiopian Tort Law vis-à-vis 3D Printing: Who is a Liable Person?

3D Printing will impact many legal fields, including regulatory, intellectual property, insurance, environmental, transportation, contracts, and imports/exports.[123] However, this article is limited to examining the legal

[121] Agence France Presse(AFP), Inquiry Into 2019 Ethiopian Air Crash Confirms Software Failure, December 23, 2022, accessible at https://www.barrons.com/news/inquiry-into-2019-ethiopian-air-crash-confirms-software-failure-01671821708; see also Fasika Tadesse and Alan Levin, Ethiopia Reiterates Boeing Max Crash Due to Unfit Safety Feature, Blomberg, December 23 2022, accessible at https://www.bloomberg.com/news/articles/2022-12-23/ethiopia-reiterates-boeing-max-crash-due-to-unfit-safety-feature?leadSource=uverify%20wall.

As part of a settlement in a civil lawsuit brought on behalf of the Ethiopian Airlines crash victims, Boeing in 2021 declared that it alone was liable for the ET302 accident and that neither the pilots nor the airline were at fault.

[122] See Dominic Gates & Steve Miletich, Boeing's $100 Million Pledge for 737 MAX Crash Victims Sparks Criticism and Questions, SEATTLE TIMES (July 3, 2019), https://www.seattletimes.com/business/boeing-aerospace/boeing-will-give-100-million to-max-crash-victims-families-and-communities. [https://perma.cc/KQ29-G9KS].

[123] Possible scenarios in which "defects" in 3D-printed products might include:

(1) The original Product used to create the initial digital design was defective;
(2) The original CAD file digital design was defectively created;
(3) A defect was introduced into the CAD file as it was uploaded to a file-sharer;
(4) The CAD file was corrupted during the process of downloading from a file sharer;
(5) The defect was caused by some problem or "defect" in the 3D printer;
(6) The defect was caused by some problem or "defect" in the bulk of raw material used in the 3D printer to create the product;

considerations of 3D Printing in the tort law system. For example, who should be potentially liable for a defective 3D-printed product? Who is responsible for an injury resulting from using a defective 3D Product?

In traditional mass production, tort liability targets producers. Since producers are considered the party who can reduce accidents at the lowest cost and spread the losses, they must bear the residual liability and are thus exposed to strict liability. In the context of 3D Printing, where digital designing and physical fabrication are accomplished by a single entity (i.e., under the so-called "one-stop business model"), applying strict liability might still be desirable. However, for production organized in the so-called "separation models[124], accidents are not unilateral, and it is difficult to define the most appropriate party who can efficiently reduce accidents and spread losses.[125]

Therefore, who should be liable for a defective 3D-printed product? Who is responsible for an injury resulting from using a defective 3D Product? should the digital designer, manufacturer, or hobbyist printer be liable for the injured?

i. **Digital Designer**

Establishing the liability of the **digital designer** is problematic because it is difficult to identify whether the "code" is a product or not.[126] A physical

(7) Human error in implementing the digital design caused the defect; and
(8) Human error in using the 3D printer or materials caused the defect.
For further information, see James M. Beck & Matthew D. Jacobson: *supra* note 116.

[124].This means that CAD file designers, fabricators, and consumers may contribute to the damage.

125 Shu Li, The Quest for Product Safety in the Context of 3D Printing: A Law and Economics Analysis, PhD. Dissertation, 2021, for further information, see https://www.eur.nl/en/events/phd-defence-s-shu-li-2021-02-12.

[126]In the U.S., the Restatement (Third) of Torts defines a product as "*tangible* personal property distributed commercially for use or consumption." See the RESTATEMENT

object produced through 3D Printing fits within traditional product concepts. However, 3D Printing requires CAD files and Code to operate the printer, and whether this software would also be considered a product is questionable.[127]

ii. **Manufacturers**

Concerning **manufacturers**, the purpose of imposing strict liability on a commercial seller, manufacturer, or distributor of products is to create "safety incentives" for manufacturers that encourage more significant investment in product safety.[128] Under a strict liability theory, product users seeking to recover for injuries resulting from a 3D-printed product face the additional hurdle of proving that a commercial manufacturer or seller placed the product on the market. Moreover, holding the printer manufacturer liable is unlikely because it must show that the 3D printer was already defective at delivery.

iii. A hobbyist Printer

An entity that regularly makes, markets, distributes, and sells 3D printed products as part of its ongoing business activities will be strict liability. On the contrary, a **hobbyist** printer, who occasionally uses 3D Printing to make, for example, a hard-to-obtain spare part, which then injures a consumer, will not be subjected to strict liability.[129]

(THIRD) OF TORTS: PRODS. LIAB. § 19 (Am. LAW INST. 1998), cited by James M. Beck & Matthew D. Jacobson: supari note 116, pp.163.

[127] Courts in the USA have yet to extend product liability theories to lousy software, computer viruses, or websites with inadequate security or defective design. However, purely electronic data, such as Code, does not constitute a product. See James M. Beck & Matthew D. Jacobson: 3D Printing: What Could Happen to Products Liability When Users (and Everyone Else in between) Become Manufacturers." Minnesota Journal of Law, Science, and Technology, Vol. 18, no. 1, p.163.

[128] James M. Beck & Matthew D. Jacobson: *supra* note 116.

[129] Id..

iv. Joint and Several Liability of Manufacturer, Importer, Wholesaler & Retailer as per Consumer Protection Laws

As we have seen earlier, in case of product defects, as per Art. 14 (5) of the Trade Competition and Consumers Protection Proclamation the injured party can claim compensation *jointly or severally from the manufacturer, importer, wholesaler & retailer*.[130] Therefore, in case of product defects related to 3D Printing, the injured party can claim compensation jointly or severally from the manufacturer, importer, wholesaler & retailer.

Concluding Remarks

In conclusion, the study analyzes the compatibility of the Ethiopian tort law with newly emerging cyberspace and product defect tort liability.

The current Ethiopian civil code cannot regulate cyberspace torts such as theft of personal data, online defamation, cyberattacks, and tort problems arising from bitcoin and cryptocurrency. As a result, damages caused by the cyberattack and dismantling of personal data, cyber security, and the crypto platform will not be redressed. Therefore, the Ethiopian government should expedite the passage of the cyber security and personal data protection regulations to minimize the losses associated with database security breaches and redress any tort liability associated with database security.

Moreover, the Ethiopian civil code governing tort liability is unresponsive to regulating tort cases arising from 3D printers or 3D printable products.

[130] Art. 14 (5) of the Trade Competition and Consumers Protection Proclamation provides as follows:

Every consumer shall have the right to: claim compensation or related either jointly or severally from persons who have participated in the supply of goods or services as manufacturer, importer, wholesaler, retailer, or in any other way for damages he has suffered because of purchase or use of the goods or services.

Mainly, it is challenging to identify the liability of the printer's manufacturer and the writer of the program code, and sometimes even the liability of the hobbyist printer who might occasionally be sold the 3D printable product. Likewise, let us be optimistic that autonomous driving, mainly high-driving automation (level 4), will soon start its operation in Ethiopia. In the case of an autonomous driving accident, it would be difficult to identify the liability of the user, owner, producer, fleet operator, and injured party. Therefore, the Ethiopian civil code governing product defects may need to be updated to keep up with this emerging technology. The finding does not call for a wholesale reform of tort principles, but they do demand careful application by judges who are sufficiently well-informed about the limits of machine and human performance.