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REGULISANJE VEŠTAČKE INTELIGENCIJE U EVROPSKOJ UNIJI U OBLASTI OSIGURANJA

PREGLEDNI NAUČNI RAD

Apstrakt

Ovaj rad pruža konciznu pravnu analizu primene veštačke inteligencije (VI) u sektoru osiguranja unutar Evropske unije (EU), s posebnim osvrtom na relevantnost i korisnost za regulatorni pristup dotičnoj oblasti u Srbiji – njen budući regulatorni okvir. VI utiče i menja niz delatnosti, a delatnost osiguranja predstavlja značajno polje primene novih tehnologija, uključujući automatizaciju obrade šteta, personalizaciju usluga i prevenciju prevara. Jezgro ovog istraživanja obuhvata harmonizaciju dinamičnog razvoja VI sa postojećim regulatornim okvirom u EU, uz postavljanje pitanja transparentnosti algoritama, pravne odgovornosti i zaštite ličnih podataka. U radu se detaljno razmatra Akt o veštačkoj inteligenciji EU, koji klasifikuje sisteme VI prema nivou rizika, pri čemu su sistemi namenjeni za procenu rizika i određivanje cena klasifikovani kao visokorizični u životnom i zdravstvenom osiguranju. Ističe se potreba za kontinuiranim nadgledanjem usklađenosti osiguravača, povećanjem pismenosti zaposlenih u pogledu korišćenja VI, te za značajnim sankcijama za nepoštovanje regulative.

Ključne reči: veštačka inteligencija, osiguranje, regulisanje, Akt o veštačkoj inteligenciji EU.

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I Uvodna razmatranja

Glavni cilj rada jeste analiza sadašnjeg stanja i perspektiva regulacije VI u sektoru osiguranja Evropske unije. Posebno i detaljno razmatra se pristup identifikovanja ključnih regulatornih izazova i potencijalnih implikacija za osiguravajuće kuće i korisnike usluga osiguranja, te se na tom tragu istražuju relevantne inicijative i propisi EU koji se odnose na primenu VI. To je pre svega Akt o veštačkoj inteligenciji (AVI), uz procenu potencijalnog uticaja na inovacije i zaštitu prava u sektoru osiguranja. Pitanje pravne odgovornosti i zaštite ličnih podataka naročito je značajno u oblasti osiguranja i primene veštačke inteligencije u kontekstu Opšte uredbe o zaštiti podataka (*General Data Protection Regulation* – GDPR).² Konačno, rad nastoji da, u značajno manjoj meri, pruži uvide koji mogu biti korisni za razmatranje budućeg regulatornog okvira u Srbiji u ovoj oblasti.

U svrhu ostvarivanja prethodno definisanih ciljeva istraživanja, u radu se koristi kombinacija kvalitativnih istraživačkih metoda. Prvenstveno je sprovedena analiza relevantnih propisa i pravnih akata EU. Primarno je razmatrana usvojena verzija Akta o veštačkoj inteligenciji, kao i druge sektorske regulative koje indirektno utiču na primenu VI u osiguranju. Izvršena je analiza odabranih pristupa i rešenja u EU u vezi s regulacijom VI u osiguranju, na osnovu dostupnih studija, izveštaja i akademske i stručne literature, kao i izveštaja institucija EU i drugih međunarodnih organizacija koje se bave pitanjima veštačke inteligencije i osiguranja.

II Pravni okvir veštačke inteligencije u Evropskoj uniji i sektor osiguranja

Pristup EU veštačkoj inteligenciji zasnovan je na izvrsnosti i poverenju, gde Evropska unija VI sagledava kao „deo našeg života“.³ Građani i kompanije treba da koriste VI, sa svim njenim prednostima, ali uz istovremeni osećaj bezbednosti i zaštite, kao i zaštite osnovnih prava. Čini nam se da prethodna rečenica ima veliki značaj u sektoru osiguranja. Pre nego što je usvojen Akt o veštačkoj inteligenciji, EU je usvojila je niz dokumenata, odnosno konkretnih pravila i mera koji omogućavaju realizaciju navedenog pristupa (primera radi, doneta je Rezolucija Evropskog parlamenta o veštačkoj inteligenciji u digitalnom dobu iz 2022. godine, a Evropska centralna banka, među ostalim institucijama, dala je Mišljenje o Aktu o veštačkoj inteligenciji).⁴

² Uredba (EU) 2016/679 o zaštiti pojedinca u vezi sa obradom ličnih podataka i slobodnom kretanju takvih podataka, *OJL* 119 4. 5. 2016.

³ <https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence>, 17. 9. 2025.

⁴ European Parliament resolution of 3 May 2022 on artificial intelligence in a digital age (2020/2266(INI)), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022IP0140>; European Central Bank,

Komuniké Komisije EU u dokumentu „Veštačka inteligencija za Evropu“ naglašava sledeće: „Veštačka inteligencija olakšava život i pomaže u rešavanju nekih od najvećih svetskih problema.“⁵ Bela knjiga o veštačkoj inteligenciji EU upućuje na to da je fokus upotrebe VI upravo na onim sektorima u kojima bi Evropa trebalo da postane svetski predvodnik, poput automobilske industrije, zdravstva, energetike, poljoprivrede, i, što je naročito značajno u kontekstu ovog rada, finansijskih usluga.⁶

Evropska komisija je 2018. godine osnovala Visoku stručnu grupu o veštačkoj inteligenciji (AI HLEG) koja je usvojila Etičke smernice za pouzdanu veštačku inteligenciju. Etičke smernice određuju pojam pouzdane veštačke inteligencije i njene tri komponente, koje treba da budu poštovane tokom celog životnog ciklusa sistema: 1) zakonita VI – poštovanje svih zakona i propisa koji se primenjuju; 2) etička VI – poštovanje etičkih načela i vrednosti i 3) otporna (robustna) VI sa tehničkog i socijalnog aspekta, jer veštačka inteligencija može prouzrokovati štetu i sa dobrim namerama.⁷ U tom smislu, veoma je značajno pomenuti i izveštaj savetodavne stručne grupe EIOPA (Evropsko nadzorno telo za osiguranje i profesionalne penzije) – Načela upravljanja veštačkom inteligencijom: prema etičkoj i pouzdanoj veštačkoj inteligenciji u evropskom sektoru osiguranja. Načela upravljanja veštačkom inteligencijom koje je iznela EIOPA sumiraju određene etičke i pouzdane principe VI u osiguranju, upravo zbog njenog širenja u ovom sektoru, uz niz prednosti za osiguravajuća društva (detaljnije procene rizika i prakse određivanja cena, delotvornije upravljanje odštetnim zahtevima, efikasna borba protiv prevara, tačnost predviđanja, automatizacija, novi proizvodi i usluge, smanjenje troškova i dr.).⁸ No, neophodno je obezbediti pravičnost, transparentnost, nediskriminaciju, pružanje adekvatnih objašnjenja, što za osiguravajuća društva nije lak posao.

Zato EIOPA predviđa principe za osiguravajuća društva, čija primena nije obavezna, uz napomenu da postoji permanentna potreba njihove revizije u budućnosti. Principi za osiguravače kada koriste sisteme VI tokom celokupnog životnog ciklusa su sledeći: Proporcionalnost – mere upravljanja proporcionalne potencijalnom

Opinion on the AI Act, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021AB0040>, 17. 9. 2025;

⁵ Communication from the Commission to the European Parliament, the European Council, The Council, The European Economic and Social Committee and the Committee of the Regions Artificial Intelligence for Europe, COM/2018/237, <https://eur-lex.europa.eu/legal-content/HR/ALL/?uri=CELEX%3A52018DC0237>, 18. 9. 2025, 1.

⁶ European Commission, White Paper On Artificial Intelligence – A European approach to Excellence and Trust, Directorate-General for Communications Networks, Content and Technology, <https://op.europa.eu/en/publication-detail/-/publication/ac957f13-53c6-11ea-aece-01aa75ed71a1>, 18. 9. 2025, 3.

⁷ High-Level Expert Group on Artificial Intelligence, Ethics Guidelines for Trustworthy AI, https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=60419, 18. 9. 2025, 2.

⁸ EIOPA, Artificial Intelligence Governance Principles (EIOPA Principles): Towards Ethical and Trustworthy Artificial Intelligence in the European Insurance Sector, 2021, https://www.eiopa.europa.eu/eiopa-publications-report-artificial-intelligence-governance-principles-2021-06-17_en, 18.09.2025.

uticaju određenog slučaja upotrebe VI na potrošače i/ili osiguravajuće kuće u cilju postizanja etičke i pouzdane upotrebe VI; Pravičnost i nediskriminacija – razmatranje rezultata sistema VI, uz uravnotežene interese svih uključenih zainteresovanih strana; treba izbeći pojačavanje postojećih nejednakosti, razmotriti pitanja finansijske inkluzije, ublažiti uticaj faktora rejtinga (npr. kreditni rezultati), izbeći prakse poput „spremnosti potrošača da plate“, poštovati princip ljudske autonomije, koristiti objašnjive algoritme i dr.; Transparentnost i objašnjivost – koristiti objašnjive modele VI, omogućiti pristup adekvatnim mehanizmima za pravnu zaštitu, a objašnjenja treba da budu smisljena i laka za donošenje informisanih odluka zainteresovanih strana; osiguravači moraju objasniti odluke koje su donete uz pomoć VI; Ljudski nadzor – uspostaviti adekvatne nivoe ljudskog nadzora, organizacionu strukturu osiguravača sa jasnim ulogama, odgovornost zaposlenih i praksu obuke za zaposlene; Upravljanje podacima i vođenje evidencija – dobro upravljanje podacima na osnovu zakona koji se odnose na zaštitu podataka, podaci dobro zaštićeni i čuvani, vođenje odgovarajuće evidencije; omogućiti praćenje i reviziju; Robustnost i performanse – sistemi VI otporni i robustni; analizirati potencijal za prouzrokovanje štete, pratiti i kontinuirano procenjivati performanse; obezbediti zaštitu od sajber napada, te primenu VI u bezbednim IT infrastrukturama.⁹

1. Akt o veštačkoj inteligenciji Evropske unije i sektor osiguranja

Ovaj segment rada je usko fokusiran na detaljnu analizu Akta o veštačkoj inteligenciji, kao i njegovih ključnih odredaba relevantnih za osiguranje, počev od klasifikacije rizika i zaključno sa obavezama uspostavljanja i održavanja obaveza za visokorizične sisteme u osiguranju.

Akt (zakon) o veštačkoj inteligenciji EU (Artificial Intelligence Act – AI Act)¹⁰ inicijalno je predložen aprila 2021. godine od strane Evropske komisije. Navedeni akt pretenduje da, na globalnom nivou, bude vodeći i sveobuhvatan pravni okvir za veštačku inteligenciju i rizike koje ona nosi. Finalizovan je 2024. godine, kada je i stupio na snagu, dok je njegova potpuna primena predviđena u roku od 24 meseca nakon stupanja na snagu. Intencija je da se reguliše razvoj i primena sistema veštačke inteligencije u različitim sektorima, uključujući osiguranje.¹¹ Akt kategorizuje sisteme VI prema nivou rizika (neprihvatljiv – zabranjen; visok, ograničen – rizik transparentnosti;

⁹ EIOPA, Artificial intelligence governance principles: towards ethical and trustworthy artificial intelligence in the European insurance sector, https://www.eiopa.europa.eu/document/download/30f4502b-3fe9-4fad-b2a3-aa66ea41e863_en?filename=Artificial%20intelligence%20governance%20principles.pdf, 18. 9. 2025, 8.

¹⁰ Akt o veštačkoj inteligenciji (Uredba (EU) 2024/1689 o utvrđivanju usklađenih pravila o veštačkoj inteligenciji), OJ L, 2024/1689, 12. 7. 2024, <http://data.europa.eu/eli/reg/2024/1689/oj>, 9. 5. 2025.

¹¹ EU Commission, EU Artificial Intelligence Act: Up-to-date developments and analyses of the EU AI Act, <https://artificialintelligenceact.eu/>, 9. 5. 2025.

minimalan).¹² Evropska komisija je pokrenula niz aktivnosti u kojima izražava potrebu odnosno traži ugovarače (podizvođače) – treće strane za *tehničku pomoć u sferi bezbednosti VI*. Ključne oblasti su: visokotehnoški kriminal, bezbednost VI, gubitak kontrole, manipulacija, ublažavanje rizika od hemijskog, biološkog, radiološkog i nuklearnog materijala (eng. *Chemical, Biological, Radiological and Nuclear Materials Risk* – CBRN) i sa prethodnim aspektima povezani rizici.¹³

Akt o veštačkoj inteligenciji sistem VI definiše kao: „... mašinski sistem oblikovan za rad s promenljivim nivoima autonomije koji nakon uvođenja može prikazati prilagodljivost, te koji, za eksplicitne ili implicitne ciljeve, iz ulaznih vrednosti koje prima, zaključuje kako valja generisati izlazne vrednosti kao što su predviđanja, sadržaj, preporuke ili odluke koje mogu uticati na fizička ili virtuelna okruženja“.¹⁴ Sistemi VI u osiguranju koji su u suprotnosti s vrednostima i principima EU biće zabranjeni, uz eliminisanje onih sistema VI u oblasti zdravlja koji predstavljaju značajne rizike po zdravlje, bezbednost i prirodnu sredinu (kritična infrastruktura, obrazovanje, zaposlenost, sprovođenje zakona, biometrijska identifikacija).¹⁵

Osnovni princip navedenog akta predstavlja pristup zasnovan na riziku – regulativa proporcionalna riziku u odnosu na različite sektore privrede, okolnosti i specifične primene i korišćenja i nivoa tehnološkog razvoja.¹⁶ Sistemi VI ograničenog rizika pripadaju posebnoj kategoriji, uz izbegavanje manipulativnih sadržaja, širenje informacija posredstvom komunikacionih tehnologija ili pak zloupotrebu prepoznavanja emocionalnog statusa. Opšte pravilo vezuje se za transparentnost dobavljača određenih sistema VI i subjekte koji ih uvode, gde fizička lica dobijaju obaveštenje da su u interakciji sa sistemom VI.¹⁷ Osiguravači moraju transparentno obavestavati potencijalne i stvarne klijente o tome koje tehnologije VI koriste, kako su usklađeni s jednostavnim mehanizmima za osiguranike da raskinu ugovore.

Sistemi VI s minimalnim rizikom pripadaju grupi za koju se smatra da može prouzrokovati minimalan negativni efekat na ljude, okruženje. To, na primer, može biti zloupotreba video igara, filteri za spem koji u suštini eliminišu stvarne informacije i komunikaciju, specijalni zahtevi za dodatnu registraciju osiguranja kod lokalnih organa vlasti.¹⁸

¹² Akt o veštačkoj inteligenciji (AVI), čl. 1.

¹³ EU CBRN Risk Mitigation – European Union, https://cbrn-risk-mitigation.network.europa.eu/index_en#:~:text=The%20acronym%20'CBRN'%20defines%20chemical,release,%20dissemination,%20or%20impacts,19.5.2025.

¹⁴ AVI, čl. 3, st. 1.

¹⁵ EIOPA, Regulatory Framework Applicable to AI Systems in the Insurance Sector, https://www.eiopa.europa.eu/document/download/b53a3b92-08cc-4079-a4f7-606cf309a34a_en?filename=Factsheet-on-the-regulatory-framework-applicable-to-AI-systems-in-the-insurance-sector-july-2024.pdf, 2024, 23. 5. 2025.

¹⁶ AVI, uvodna izjava 26.

¹⁷ AVI, čl. 50.

¹⁸ European Commission, Shaping Europe's digital future, <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>, 23. 5. 2025.

Akt o veštačkoj inteligenciji osiguranje određuje kao visokorizični sistem u pogledu korišćenja VI, – posredi su sistemi VI namenjeni za procenu rizika i određivanje cena u odnosu na fizička lica u slučaju životnog i zdravstvenog osiguranja, dakle ne direktno u okviru pravila o klasifikaciji visokorizičnih sistema VI (čl. 6 Akta). Razlog je značajan uticaj na dobrobit i egzistenciju pojedinaca i osnovna ljudska prava – navedeni osetljivi sistemi moraju biti usklađeni s naglašeno strogim i preciznim zahtevima regulative.

Shodno tome, za visokorizične sisteme veštačke inteligencije primenjuje se niz pravila koja obuhvataju obaveze za sisteme VI u osiguranju koje se odnose na procene njihovog uticaja na osnovna prava, sisteme upravljanja rizikom, podatke i upravljanje podacima, tehničku dokumentaciju, čuvanje evidencije, transparentnost i pružanje informacija subjektima koji uvode sistem, upravljanje kvalitetom, ljudski nadzor i dr.¹⁹

Korišćenje sistema VI u sektoru osiguranja nameće još niz specifičnih zahteva, pre svega u pogledu dobavljača razvijenih sistema veštačke inteligencije, poput sistema upravljanja kvalitetom dobavljača, njihovih obaveza u vezi s dokumentacijom (osiguravajuća društva koja koriste VI sisteme moraju održavati tehničku dokumentaciju, u sklopu postojeće dokumentacije); finansijske institucije čuvaju evidenciju koju automatski generiše visokorizični sistem VI u sklopu dokumentacije koja se čuva na osnovu relevantnog prava EU o finansijskim uslugama.²⁰ Dobavljači za sisteme VI visokog rizika, u skladu sa čl. 72 Akta, uspostavljaju sistem praćenja nakon stavljanja na tržište (posttržišni monitoring) i kreiraju dokumentaciju za sistem (proporcionalno prirodi i rizicima sistema VI). Finansijske institucije koje već imaju svoj sistem i plan posttržišnog monitoringa mogu ih integrisati u svoje postojeće procese, u cilju obezbeđenja doslednosti, tačnosti i smanjenja opterećenja.

Akt o veštačkoj inteligenciji (AVI), nadalje, zabranjuje upotrebu sistema VI kojima se namerno manipuliše ljudskim ponašanjem (manipulativne ili obmanjujuće tehnike) ili iskorišćava slabost osetljivih društvenih grupa.²¹ Strogo je se zabranjena primena skala i bodovanja građana kao i zloupotreba biometrijskih podataka u svrhe koje su nedozvoljene (npr. izvođenje zaključka o članstvu u sindikatu, njihovoj rasi i dr.). Ta regulativa konsekventno tretira upotrebu biometrijskih podataka u osiguranju klasifikujući je kao visokorizičnu ili je potpuno zabranjuje. Akt o digitalnim uslugama (*Digital Services Act – DSA*) i Akt o digitalnim tržištima (*Digital Markets Act – DMA*) usmereni su da kreiraju bezbedniji i sigurniji digitalni prostor u EU, uz zaštitu osnovnih prava korisnika i formiranje stabilnosti tržišta koje nudi izjednačene uslove za sve učesnike.²²

¹⁹ AVI, Odeljak 2. – Zahtevi za visokorizične sisteme VI.

²⁰ Analiza prema čl. 8 do 23, AVI Odeljak 2.

²¹ AVI, čl. 5.

²² European Commission, „The Digital Services package”, <https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package>, 25. 5. 2025.

Važno je naglasiti i aktivnosti drugih međunarodnih organizacija u oblasti VI. Organizacija za međunarodnu saradnju i razvoj (OECD) usvojila je Principe koji se odnose AI, koji nisu pravno obavezujući, a sa Evropskom komisijom sarađuje u pogledu globalnog monitoringa i analize razvoja VI.²³ Ujedinjene nacije, takođe, promovišu globalnu kooperaciju u regulativi VI, i usvojile su niz dokumenata u ovoj oblasti, kao i Savet Evrope.²⁴

2. Primena i izazovi regulative veštačke inteligencije u osiguranju

Izazovi i rizici u sektoru osiguranja odnose se na transparentnost, pravičnost i nediskriminaciju, a osiguravajuća društva imaju široku slobodu pri izboru mera upravljanja u konkretnim slučajevima upotrebe VI tokom celog životnog ciklusa sistema veštačke inteligencije, sve u cilju ostvarivanja prednosti koje nudi (brža i automatska obrada odštetnih zahteva, preciznija i detaljnija procena rizika, delotvorna borba protiv prevara). Prema EIOPA Principima za osiguravače, osiguravajuća društva treba da imaju u vidu sledeće: pojedine linije osiguranja su značajne za društvenu i finansijsku inkluziju (korporativna društvena odgovornost osiguravajućih društava) – postupanje na odgovarajući način i procena ishoda sistema VI, kako VI ne bi dodatno pojačala nejednakosti nesrazmernim uticajem na potrošače koji su u ranjivoj situaciji zbog ličnih okolnosti; koristiti objašnjive sisteme VI; uspostaviti ljudski nadzor (imenovanje zaposlenog to jest službenika za zaštitu ličnih podataka i za VI); definisanje jasnih uloga i odgovornosti zaposlenih, kao i obezbeđenje obuka zaposlenih; u cilju obezbeđenja odgovornosti osiguravajućih društava, neophodno je eliminisati pristrasnost u podacima za obuku, voditi evidenciju o korišćenim metodologijama modeliranja i načinu na koji su skupovi podataka obrađeni; primena sistema VI u otpornim i bezbednim IT infrastrukturama, praćenje tačnosti predviđanja sistema VI; pridržavanje važećih zakona, a konkretno zakonodavstvo utiče na izbor mera upravljanja veštačkom inteligencijom.²⁵

Relevantno pravno analiziranje aplikacije veštačke inteligencije (VI) u sektoru osiguranja u Evropskoj uniji značajno je zbog činjenice da će se takav pravno-regulatorni pristup transplantirati u segmentu regulative u ovoj oblasti u Srbiji. Novi odnosi koji će nastati u našoj zemlji povodom primene veštačke inteligencije u različitim sektorima zahtevaju i novo normiranje, odnosno pravno uređenje. Vlada Republike Srbije usvojila je, drugu po redu, Strategiju za razvoj veštačke inteligencije za period

²³ https://ai-watch.ec.europa.eu/about/collaborations/oecd-ai-policy-observatory_en, 18. 9. 2025.

²⁴ <https://unric.org/en/artificial-intelligence-in-the-international-sphere/>; <https://www.coe.int/en/web/artificial-intelligence/the-framework-convention-on-artificial-intelligence>, 19. 9. 2025.

²⁵ EIOPA Opinion on AI Governance And Risk Management, 2025, https://www.eiopa.europa.eu/document/download/88342342-a17f-4f88-842f-bf62c93012d6_en?filename=Opinion%20on%20Artificial%20Intelligence%20governance%20and%20risk%20management.pdf, 17. 9. 2025, 5–17.

od 2025. do 2030. godine, koja sadrži nove ciljeve i mere, kako bi se obezbedio jasan i funkcionalan institucionalni i pravni okvir VI, unapredilo obrazovanje u toj oblasti, primenila rešenja veštačke inteligencije u javnom i privatnom sektoru i dr. Pomenuta Strategija određuje i rizike koje VI nosi, pogotovo u postupcima ostvarivanja prava kao što su npr. kreditiranje, zapošljavanje, osiguranje i dr., kao i rizike u pogledu povrede prava na privatnost kada se prikupljaju i obrađuju velike količine podataka.²⁶

VI transformiše brojne industrije, sektore i delatnosti u EU. Jedna od najznačajnijih oblasti je svakako sektor osiguranja kao okosnica finansijskog i bankarskog sistema Evropske unije, i na nacionalnom nivou zemalja članica. Sektor osiguranja u Srbiji je dominantno u stranom vlasništvu krupnih osiguravajućih društava iz EU, što uz paralelni proces pristupanja Srbije Evropskoj uniji zahteva da pravo osiguranja naročito blisko prati navedeni nastanak i razvoj nove regulative. Uočava se proces automatizacije obrade šteta. Ponuda usluga osiguranja je rastuće personalizovana. Koriste se modeli za sofisticiranu kvantitativni i kvalitativnu procenu rizika, kao i prevenciju prevara. Osiguravačima su tako ponuđene neslućene perspektive unapređenja poslovne efikasnosti, uz stalno snižavanje troškova i ostvarivanje ušteda, i jednako važno unapređenje korisničkog iskustva. Time VI uvodi sledeću tehnološku revoluciju, ali i određene nepoznanice i rizike, koji će biti naročito kompleksni u sferi regulative, etike i zaštite ličnih podataka korisnika osiguranja.

Različite izazove odrediće različite situacije njenog korišćenja. Uticaj veštačke inteligencije je poput lavine nezaustavljivih i dubokih promena, čiji se krajnji tokovi, ciljevi i efekti ne mogu dovoljno precizno spoznati u sadašnjosti. Pravna regulativa VI u EU određuje čitav set pravila kojih će morati da se pridržavaju nacionalne vlade (kreiranje i sprovođenje propisa, izricanje kazni), kompanije korisnici VI (identifikovati sisteme veštačke inteligencije koji se koriste, odrediti rizike, voditi dokumentaciju za one visokorizične sisteme, ostvariti transparentnost, obezbediti ljudsku kontrolu i dr.), potrošači odnosno građani u pogledu informisanosti i zaštite) i dr. Prema Aktu o VI (**čl. 77, st. 2**), svaka država **članica određuje javne organe**, to jest javna tela koja će nadzirati i sprovoditi obaveze u vezi sa zaštitom osnovnih prava pri korišćenju visokorizičnih sistema VI.²⁷ Takođe, osnivaju se i nacionalna nadležna tela i jedinstvene kontaktne tačke²⁸ koje sprovode prijavljivanje, nadziru tržište i preduzimaju **određene mere u pogledu odgovarajućeg nivoa kibernetičke bezbednosti**.²⁹

²⁶ Strategija razvoja veštačke inteligencije za period od 2025. do 2030. godine, https://www.srbija.gov.rs/extfile/sr/437304/strategija_vestacka_inteligencija054_cyr6.zip, 18. 9. 2025, 2.1

²⁷ Tako je, npr. Hrvatska imenovala različite ombudsmane i agencije u cilju zaštite osnovnih prava građana u kontekstu razvoja i primene veštačke inteligencije, <https://mpudt.gov.hr/news-25399/list-of-competent-authorities-under-artificial-intelligence-act-notified/29658>, 17. 9. 2025.

²⁸ Više o prenošenju zahteva za sprovođenje Akta o VI na primeru Italije, Nemačke, Luksemburga i Španije: Theodoros Karathanasis, „The AI Act: Balancing Implementation Challenges and the EU's Simplification Agenda“, <http://dx.doi.org/10.2139/ssrn.5311501>, 2025, 10. 5. 2025, 4–9.

²⁹ AVI, čl. 70.

Na toj platformi definisali smo ključni problem istraživanja koji nastaje iz same potrebe za harmonizacijom dinamičnog razvoja VI sa postojećim regulatornim okvirom i praksom u EU koja je tek na startu. Na nivou EU veoma je značajna saradnja između tela EU i država članica, razmena informacija, bolja saradnja, kao i razmatranje pojednostavljenja propisa u ovoj oblasti, uz oprez da regulatorna zaštita koju obezbeđuje AVI ostane nepromenjena.³⁰ Važno je pitanje transparentnosti algoritama, njihove javne provere, odnosno ko će ih revidirati i potvrđivati valjanost i ispravnost.³¹ Sledeće pitanje jeste ko je pravno i stvarno odgovoran za odluke donete korišćenjem VI. U praksi će nastajati problemi potencijalne diskriminacije osiguranika, otvaraće se pitanje kako efikasno zaštititi osetljive vitalne podatka klijenata.

Osiguravajuća društva koja potiču iz EU će svakako morati da se pridržavaju Akta. No, isto će važiti i za kompanije koje nude usluge građanima EU (npr. osiguravači iz Velike Britanije, ukoliko planiraju da na jedinstvenom tržištu u poslovnim operacijama koriste sisteme VI ili ih samo postavljaju za korišćenje na teritoriji EU, bez obzira na stvarnu fizičku lokaciju kompanije). Velika Britanija se posle Bregzita sve više približava i harmonizuje u većini regulative, na skoro svim poljima sa EU, ili kroz sporazume o regulatornoj saradnji, ali uz određeno odgađanje primene Akta. No, moguće je da će ga uskoro formalno usvojiti, i pored toga što ima mnoštvo svojih zakonskih rešenja i propisa koji regulišu ovu oblast, kroz „blagi regulatorni pristup“.³²

Harmonizacija sa Aktom o veštačkoj inteligenciji je sledeći korak za osiguravače, te procena rizika sistema VI u praksi, obavljanje pregleda potrebnih mera i sprovođenje regulatornog kontinuiranog monitoringa njihove primene. Zaposleni u osiguranju treba da se obrazuju i informišu o korišćenju VI, o svim sistemima veštačke inteligencije, ne samo o visokorizičnim, već i sistemima ograničenog rizika primene.

Akt predviđa stroge sankcije za nepoštovanje. Novčane kazne se mogu kretati do sedam posto globalnog godišnjeg prometa kompanije za prethodnu finansijsku godinu za kršenje odredaba o zabranjenim aplikacijama VI, do tri posto za kršenje drugih obaveza, i do 1,5 posto za davanje netačnih, nepotpunih ili obmanjujućih informacija.³³

AVI EU kreiran je kako bi se osigurala odgovorna i pouzdana upotreba veštačke inteligencije. Akt stimuliše regulatorni okvir koji koristi svima uz istovremeno rešavanje mogućih pretnji zdravlju, sigurnosti i osnovnim ljudskim pravima. U kontekstu izricanja kazni, značajna je uloga tela koja nadziru tržište u državama

³⁰ T. Karathanasis, 20–23.

³¹ EIOPA, Impact Assessment of EIOPA's Opinion on AI governance and risk management, 2025, dostupno na adresi: https://www.eiopa.europa.eu/document/download/197892cf-5100-4cba-9f10-143b5e893559_en?filename=EIOPA-BoS-25-008%20-%20AI%20Opinion%20-%20Impact%20Assessment.pdf&prefLang=bg, 20. 5. 2025.

³² European Parliament, The United Kingdom and artificial intelligence, [https://www.europarl.europa.eu/RegData/etudes/ATAG/2024/762285/EPRS_ATA\(2024\)762285_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2024/762285/EPRS_ATA(2024)762285_EN.pdf), 2024., 19. 5. 2025.

³³ AVI, čl. 99.

članicama EU. Ukoliko su u pitanju visokorizični sistemi koje koriste finansijske institucije, uključice se i nacionalno telo koje ih finansijski nadzire.³⁴

III. Pravno regulisanje specifičnih problema upotrebe veštačke inteligencije u osiguranju

Regulativa AVI je rezultat dugog procesa i kumuliranih napora i investiranja. Sledeći korak je da je osiguravajuća društva prihvate i razvijaju u okviru svog lanca kreiranja vrednosti.³⁵ Cilj Komisije je da budućnost osiguranja bude zasnovana na javnom poverenju, poštovanju ljudskih vrednosti i građanskih prava, uz oslonac na nove metode procene rizika, te unapređenje bezbednosti ljudi, prava i sloboda. AVI uvodi nove standarde korporativnog upravljanja, s ciljem da Komisija i Evropski odbor za veštačku inteligenciju valjano sarađuju u sprovođenju zakonske regulative gde će se većina zakonskih rešenja primenjivati od 2. avgusta 2026. godine.

VI će uticati na mehanizme i politiku cena, kao i na procene rizika, ali i pružanje određenih garancija u oblasti osiguranja. Precizni regulatorni zahtevi odnose se na kvalitet podataka, računovodstveni koncept „istinito i pošteno“ prikazivanje, tehničku dokumentaciju, striktni nadzor koji sprovode ljudska bića. Sistemi VI će morati da poseduju određeni sistem autonomije od nepotrebne ljudske intervencije, sposobnost samoučenja i samorazvoja, sposobnost promene i prilagođavanja. Kompleksni aktuarski modeli u praksi postaće deo budućih AI klasifikovanih kao visokorizični modeli koji će morati da imaju tehničku mogućnost da ih koristi interna i eksterna revizija. Analitičari velikih podataka ulaze na širom otvoreno tržište VI u sektoru osiguranja.

Jedan od prvih koraka koji čeka osiguravače u EU jeste procena nivoa rizika postojećih i planiranih aplikacija VI, uz kreiranje novih modela korporativnog upravljanja, menadžmenta rizika u osiguranju i procenjivanja šteta. Predviđa se da će mnoge osiguravajuće kompanije formirati odbor za korporativno upravljanje veštačkom inteligencijom sa zadatkom da kreira i nadgleda implementacije razvojne strategije VI kroz njen životni ciklus. Uz AVI, relevantno je i sledeće zakonodavstvo: Direktiva o distribuciji osiguranja³⁶ u kontekstu poboljšanja standarda zaštite potrošača, direktiva Solventnost II,³⁷ kao i zakonska rešenja za institucije strukovnih

³⁴ AVI, čl. 74.

³⁵ EIOPA, Consultation Paper on Opinion on Artificial Intelligence Governance and Risk Management, https://www.eiopa.europa.eu/document/download/8953a482-e587-429c-b416-1e24765ab250_en?filename=EIOPA-BoS-25-007-AI%20Opinion.pdf, 2025, 23. 5. 2025, 3.

³⁶ Directive on insurance distribution, OJ L 26, 02/02/2016, <http://data.europa.eu/eli/dir/2016/97/oj>, 24. 5. 2025.

³⁷ Više: Iva Tošić, „Poslovanje osiguravajućih društava u digitalnom okruženju – Šta nam donosi DORA?“, *Tokovi osiguranja*, br. 1/2025, 73.

(profesionalnih) penzijskih fondova, kao i veoma značajna i dalekosežna Direktiva o suzbijanju pranja novca.

U delatnosti osiguranja EU na velika vrata s pompom ulaze sistemi veštačke inteligencije zasnovani na algoritmima. Prethodno se od delatnosti osiguranja traži da se ubrzano prilagođava, da prihvata i dalje razvija sisteme VI, koristi mašinsko učenje, baze tekstualnih podataka (veliki jezički modeli), pogotovo u oblasti primene takozvanih „pametnih ugovora“ u osiguranju.³⁸

Proces ubrzane i možda preteći haotične transformacije osiguranja u EU započet je uvođenjem veštačke inteligencije. Da li će to biti kontrolisan ili delimično kontrolisan tok, odgovoriće budućnost.³⁹ Svakako se pred našim očima razvija revolucija uvođenja VI u osiguranje i ubrzano napuštanje značajnih segmenata tradicionalnog osiguranja kakvo je sada. Krucijalne promene procesa kvantifikacije i menadžmenta rizika su u toku. Razvijaju se nove usluge u delatnosti osiguranja. Unapređenje kvaliteta i obima komunikacije s klijentima postaje zapovest za osiguravače. U praksi se javljaju novi modeli analize informacija i podataka, koriste se prediktivne tehnike donošenja, sprovođenja i monitoringa poslovnih operacija osiguranja. Cilj je efikasno upravljanje rizikom, kao i formulisanje novih pristupa pružanju visoko personalizovanih osiguravajućih usluga.

Učešće veštačke inteligencije u lancu kreiranja vrednosti u osiguranju raste počev od procesa automatizacije, personalizacije usluga, prevencije prevara, metoda procena i upravljanja rizikom.⁴⁰ Regulatorni sistem VI u osiguranju u EU se usmerava da kreira solidan, stabilan i koherentan pravni okvir koji se efikasno bavi rizicima, na jednoj strani. Na drugoj strani, u naučnoj i opštoj javnosti raste strah i ističe se potreba zaštite i bezbednosti ličnih podataka, aspekata poverljivosti, a javlja se i strah od gubitka privatnosti i lične sigurnosti. Strateški put razvoja ide kroz jačanje i investiranje u IT, proširivanje mogućnosti dobijanja novih analitičkih uvida u podatke, uz aktivnu participaciju osiguranika u razvoju tehnologije VI.

Odnos i interakcija Akta o veštačkoj inteligenciji EU u delatnosti osiguranja i interakciji sa GDPR-om jeste odnos povratnih sprega, ali i nedorečenosti kontradiktornih aspekata regulative, jer pitanja nisu harmonizovana u procesu formiranja ova dva značajna segmenta.⁴¹ VI u osiguranju će kreirati nove reke podataka koje će biti moguće obuhvatati, sistematizovati, analizirati i na toj osnovi donositi efikasne odluke i uspešno voditi poslovne operacije u osiguranju u skladu s regulativom. To je upravo

³⁸ Angelo Borselli, „Osiguranje putem algoritma“, *Časopis za teoriju i praksu osiguranja*, br. 2/2018, 35–38.

³⁹ Branko Pavlović, Vesna Minić-Pavlović, „Snagom podataka do osiguranja budućnosti“, *Zbornik radova SORS*, 33. susret osiguravača i reosiguravača Sarajevo, 2022, <http://sors.ba/UserFiles/file/SorS/2022/Zbornik/03%20Sors%202022%20-%20Zbornik%20radova%20-%20Pavlovic.pdf>, 20. 5. 2025, 153–182.

⁴⁰ Za više vid. Mihovil Anđelinović, „Potencijal primjene umjetne inteligencije u osiguranju“, *Croatian Insurance Journal*, No. 10/2024, dostupno na adresi: <https://hrcak.srce.hr/317516>, 16. 5. 2025, 95–107.

⁴¹ Maja Nisevic, Arno Cuypers, Jan De Bruyne, „Explainable AI: Can the AI Act and the GDPR go out for a Date?“ January 15, 2024, SSRN: <https://ssrn.com/abstract=5056022>, 24. 5. 2025.

zbog činjenice da će uvođenje sistema VI u domenu procene rizika i determinisanja cena životnog i zdravstvenog osiguranja podrazumevati klasifikaciju visokog rizika.

Povratna sprega AVI i Opšte uredbe o zaštiti podataka je ključna. Uredba je primarno usmerena da ostvari ciljeve zaštite ličnih podataka i prava individua, dok se AVI bavi aspektima bezbednosti – sigurnosti i pouzdanosti samih sistema veštačke inteligencije. Akt precizira aspekte komplementarnosti kroz specificiranje tehničkih i organizacionih zahteva za visokorizične sisteme veštačke inteligencije u osiguranju. Pristup podrazumeva da se kroz primenu zahteva GDPR-a obezbeđuje zakonitost u procesima obrade podataka osiguranika, što znači minimiziranje podataka, jasnu i transparentnu svrhu obrade, limitiranje prava osiguravača na period čuvanja podataka, pojačanu zaštitu podataka i privatnosti.

U Hrvatskoj, državi članici EU, delatnost osiguranja prolazi kroz buru prave digitalne revolucije, gde nove softverske aplikacije i druge IT tehnologije unapređuju kvalitet usluga i ubrzavaju komunikaciju s klijentima,⁴² sve u funkciji maksimizacije profita. Vlasnici vozila u Hrvatskoj već sada mogu pomoću mobilnog telefona ili tableta da procene štetu uz asistenciju stručnjaka za osiguranje na daljinu, a sam proces ne traje dugo.⁴³ Primera radi, „Croatia osiguranje“ je razvilo posebnu aplikaciju koja omogućava brzo rešavanje manjih šteta i isplatu bez kašnjenja na licu mesta.⁴⁴ Prednost je valjanije i konkurentno formiranje cena, ali i prevencija prevara u isplati šteta. Istovremeno, VI pomaže u kreiranju visoko prilagođene ponude potrebama klijenata, onlajn kupovinu polisa, samostalni unos podataka i pristup, rezervisanje termina za medicinske preglede u okviru polisa zdravstvenog osiguranja i dr. Posebna pažnja osiguravajućih društava u Hrvatskoj usmerena je na aspekte bezbednosne zaštite podataka zbog činjenice da raste učestalost napada koji su sve više rizični.

Dobar primer korišćenja veštačke inteligencije u sektoru osiguranja u Sloveniji predstavlja jedna od najvećih kompanija Zavarovalnica „Triglav“, koja primenjuje četbot pod nazivom AI TRIA u cilju pružanja podrške klijentima i odgovaranja na česta pitanja; VI koji upućuje zahteve odgovarajućim sektorima, VI za obradu i analizu dokumenata, VI za procenu štete, VI za analizu podataka o klijentima i dr.⁴⁵ Studija Evropskog parlamenta navodi upotrebu VI u sektoru osiguranja još pre usvajanja AVI. Tako kompanija „Royal Dutch Touring Club ANWB“ obezbeđuje popust

⁴² Zoran T. Ćirić, „Važnost komunikacije s klijentima u delatnosti osiguranja“, *Tokovi osiguranja*, br. 1/2024, 211–212.

⁴³ „Croatia osiguranje“, <https://www.netokracija.com/osiguranje-digitalizacija-croatia-osiguranje-233536>, 16. 5. 2025.

⁴⁴ Insurance Europe, Consumer hub, dostupno na adresi: <https://www.insuranceeurope.eu/priorities/2943/consumer-hub>; <https://www.osiguranje.hr/ClanakDetalji.aspx?22482>, 16. 5. 2025.

⁴⁵ <https://www.triglav.eu/en/media/press-releases/press-release/when-ai-tria-speaks#:~:text=Last%20year%2C%20Triglav%20also%20started,time%20via%20a%20voice%20interface>; https://www.microsoft.com/en/customers/story/175_2754742242485191-zavarovalnica-triglav-azure-openai-service-insurance-en-slovenia#:~:text=%E2%80%9CThe%20AI%20initiatives%20have%20saved,An%20even%20smoother%20customer%20experience, 17. 9. 2025.

u osiguranju automobila ukoliko vozači preuzmu aplikaciju koja će pratiti njihov stil vožnje. U drugim kompanijama razvijene su aplikacije koje prate aktivnost kupaca i njihov način života, čime se obezbeđuje popust na zdravstveno osiguranje; sporna primena VI kod kompanije „WeSee“ predstavlja aplikacija za detektovanje emocija u cilju otkrivanja prevara u osiguranju i dr.⁴⁶

Postavljaće se i pitanje koje će upotrebe VI od strane osiguravajućih društava biti sporne. Zato se delatnost osiguranja u zemljama EU veoma seriozno priprema za digitalnu transformaciju primene veštačke inteligencije.⁴⁷ Nastaju nove forme osiguravajućih kuća, usko specijalizovanih za informacione tehnologije u osiguranju koje se bave digitalizacijom procesa i usluge (engl. *InsurTech*), ali i novi rizici.⁴⁸ Ta vrsta kompanija se može definisati kao inovativno korišćenje tehnologije u osiguranju i kao podgrupa u okviru FinTech-a, kompanija usmerenih na finansijsku tehnologiju.⁴⁹ Takve kompanije razvijaju rešenja u sferi usluga digitalnog osiguranja. „Veliki podaci“ (engl. *Big data*) od ključnog su i rastućeg značaja kao primarni izvori informacija za osiguranje koje ih koristi za mašinsko učenje i formiranje modela VI. U analizama ima i suprotnih stavova da će VI, ne smanjiti, već povećati radno opterećenje zaposlenih. Mera poslovne efikasnosti i uspeha biće kapacitet zadržavanja postojećih i privlačenja novih klijenata, što će povratno zahtevati rastuća ulaganja u IT infrastrukturu i stalne obuke zaposlenih uz rastuće prisustvo InsurTech kompanija na tržištu osiguranja.⁵⁰ Klimatski rizici, o kojima se ne zna dovoljno, predstavljaju najveće rizike za poslovne modele i stabilnosti tržišta osiguranja, kao fizički rizici koji kreiraju nove izazove, uz astronomski rast različitih likvidiranih šteta.⁵¹ Sve to povratno zahteva jačanje uloge osiguranja i zaštite osiguranika. Aspekti utvrđivanja pravne odgovornosti za štetu u eri veštačke inteligencije zahtevaju adekvatan regulatorni okvir. EU se opredeljuje za ujednačena pravna rešenja, što je ispravan put, pri čemu se težište regulatornog odgovora pomera ka razvojnim programerima u osiguranju, uz jačanje i preciziranje pravne odgovornosti.⁵²

⁴⁶ European Parliament, Regulatory divergences in the draft AI act, Differences in public and private sector, 2022, [https://www.europarl.europa.eu/thinktank/en/document/EPRS_STU\(2022\)729507](https://www.europarl.europa.eu/thinktank/en/document/EPRS_STU(2022)729507), 17. 9. 2025, 17; 22.

⁴⁷ Martina Perković, „Umjetna inteligencija i big data tehnologija u industriji osiguranja“, *Ilab Working Papers Series*, No. 01-05/2021, 4 i dalje.

⁴⁸ Anat Keller, Clara Martins Pereira, Martinho Lucas Pires, „The European Union's Approach to Artificial Intelligence and the Challenge of Financial Systemic Risk“, *Multidisciplinary Perspectives on Artificial Intelligence and the Law* (eds. Henrique Sousa Antunes et al.), Springer, Cham, 2024, 415–416.

⁴⁹ Sonja D. Radenković, Azra Sućeska, Hasan Hanić, „Technological Foundations of Fintech“, *Fintech in the Context of the Digital Economy Opportunity and Challenges* (ed. Hasan Hanić, Radislav Jovović), 2023, 98–99.

⁵⁰ Rastko Filipović, Integracija veštačke inteligencije u svakodnevnost osiguranja, <https://www.deloitte.com/ce/en/about/story/our-markets/deloitte-serbia/integracija-ve-take-inteligencije-u-svakodnevnost-osiguranja.html>, 20. 5. 2025.

⁵¹ EIOPA, „The role of insurers in tackling climate change: challenges and opportunities“, *The EUROFI Magazine, Stockholm*, 2023, dostupno na adresi: https://www.eiopa.europa.eu/publications/role-insurers-tackling-climate-change-challenges-and-opportunities_en, 21. 5. 2025.

⁵² Ivana. B. Ljutić, „Legal Implications of Fintech“, *Fintech in the Context of the Digital Economy Opportunity and Challenges*, 2023, 194–208.

Pitanje pravila i pravnih rešenja vanugovorne odgovornosti s obzirom na veštačku inteligenciju predstavlja značajan izazov u Evropskoj uniji, pogotovo u svetlu suzbijanja rizika povezanih sa upotrebom VI, ali i upućivanja na njeno korišćenje.⁵³ U tom smislu, ključni elementi pravne regulative vanugovorne odgovornosti u pogledu VI jesu pravila koja se odnose na teret dokazivanja, prikupljanje informacija o visokorizičnim sistemima veštačke inteligencije od strane lica koja traže naknadu štete, objektivna odgovornost u pojedinim slučajevima,⁵⁴ prilagođavanje nacionalnih pravila država članica u pogledu građanskopravne odgovornosti koja se vezuje za VI, stroža regulativa i jača međunarodna saradnja, procena i osiguranje izloženosti odgovornosti kompanija, osiguranje od odgovornosti za sisteme VI, pravna sigurnost i dr.⁵⁵

Pravni i etički izazovi primene VI u osiguranju se nižu. Automatizacija procena i isplata šteta otvoriće rastuće potencijale za osiguranje, pogotovo za osiguranje putnika. Turista će moći da pošalje račun za popravku preko mobilne aplikacije, uz korišćenje NLP-a (neurolingvističko programiranje) i kompjuterskog vida, identifikuje relevantne podatke (iznos, datum, vrsta usluge). Zatim sledi upoređivanje sa uslovima polise i automatsko odobravanje isplata ili preusmeravanje kompleksnih slučajeva zaposlenom operateru. Tu nastaju novi izazovi i rizici počev od regulative koja se odnosi na zaštitu ličnih podataka i Opšte uredbe o zaštiti podataka (GDPR).⁵⁶ Sistem će morati da obezbeđuje sigurnost podataka osiguranika u svim fazama (zakonito, transparentno, pošteno obrađivanje podataka, ograničenje na nužno u odnosu na svrhu obrađivanja, tačnost i ažurnost, arhiviranje samo koliko je potrebno u skladu sa svrhom obrade i dr.).⁵⁷ Budući koraci su anonimiziranje podataka korišćenjem pseudoimenovanja (pseudonimizacija) svuda gde je moguće, uz nužnu eksplicitnu saglasnost osiguranika za obradu ličnih podataka kroz VI.

Osiguravači će se susretati sa određenom dozom skepse i strahom da će klijenti gubiti poverenje i biti skloni pokretanju sporova. Rešenje je da se jasno i efikasno rešavaju žalbe bez upotrebe VI. Očekuje se i predviđa sve veća personalizacija polisa osiguranja. Za vozila će se koristiti telemetrijski podaci: brzina, pređeni kilometri, stil vožnje. VI će nuditi niže premije na osnovu procene rizika za dobre

⁵³ Liability Rules for AI, https://commission.europa.eu/business-economy-euro/doing-business-eu/contract-rules/digital-contracts/liability-rules-artificial-intelligence_en, 9. 5. 2025.

⁵⁴ Emmanuela Truli, „Non-contractual Liability in the Context of Artificial Intelligence: The Long Way to New EU Legislative Tools“, *European Review of Private Law*, Vol. 31, No. 1/2023, https://www.researchgate.net/publication/382114755_Non-contractual_Liability_in_the_Context_of_Artificial_Intelligence_The_Long_Way_to_New_EU_Legislative_Tools, 23. 5. 2025, 47.

⁵⁵ European Commission, Proposal for a Directive of The European Parliament And of The Council on adapting non-contractual civil liability rules to artificial intelligence (AI Liability Directive), COM/2022/496 final.

⁵⁶ European Parliament, The impact of General Data Protection Regulation (GDPR) on artificial intelligence, 2020, [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/641530/EPRS_STU\(2020\)641530_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/641530/EPRS_STU(2020)641530_EN.pdf), 23. 5. 2025.

⁵⁷ Opšta uredba o zaštiti podataka, čl. 5.

vozače, pri čemu će neke kompanije nuditi atraktivnije (jeftinije) polise vozačima koji u određenom periodu prelaze manji broj kilometara.

Primena VI pokreće niz etičkih pitanja iz aspekta primene regulative GDPR-a, od pitanja saglasnosti osiguranika, jednakog tretmana osiguranika, npr. u različito naseljenim područjima, da li su navike „oštrijih i ofanzivnih“ vozača unapred tretirane kao povećani rizik i dr. (poštovanje autonomije fizičkih lica, sprečavanje štete, transparentnost, bezbednost, zabrana diskriminacije i dr.).⁵⁸ Otvara se pitanje regulatorne usklađenosti na nacionalnom nivou – da li je u svim zemljama isti tretman osiguranika. Sistemi VI već pohranjuju ogromne količine podataka koji pružaju mogućnost analize i preventivne identifikacije sumnjivih odštetnih zahteva, česte prijave sličnih šteta, korišćenje usluga sumnjivih servisa.

IV Uticaj regulative Evropske unije u sferi veštačke inteligencije i budućnost u sektoru osiguranja

EU se u sferi regulisanja VI suočava sa izazovima lažnih pozitivnih rezultata. Konkretno, nastaje rizik da se legitimni zahtevi za naknadu štete pogrešno detektuju kao prevare. To povratno izaziva nezadovoljstvo osiguranika i povećava rizik od potencijalnih sudskih sporova. Regulativa i praksa treba da omoguće i uspostave ravnotežu između efikasnosti osiguranja i preciznosti naknade šteta. Algoritmi mogu biti pristrasni i nacionalno determinisani određenim podacima, kulturološkim elementima i društvenim normama, a socijalna objektivnost je nužan uslov.⁵⁹ Algoritmi u budućnosti moraću biti transparentni i omogućavati konstantnu reviziju, a sistemi VI moraju brže da se prilagođavaju kako bi održali efikasnost. Budući razvoj VI u osiguranju ima perspektivu jedino uz modele bolje procene rizika i razvoja usluga osiguranja.⁶⁰ U tome su naročito značajne procene rizika prirodno **i veštački izazvanih katastrofa s ljudskim faktorom (poplave, zemljotresi, požari u prirodi, cunami itd.)**. VI će analizirati geolokacijske i klimatske podatke, istorijske vremenske serije, topografiju, demografske tokove i dr. Korišćenje VI u prethodnom kontekstu rezultira boljim i preciznijim kreiranjem polisa. Značajna je regulatorna saglasnost i monitoring regulatornih tela, rast poverenja klijenata i strogo poštovanje etičkih uslova, uz naglašenu transparentnost usluga osiguranja.

⁵⁸ The impact of General Data Protection Regulation (GDPR) on artificial intelligence, 50, 73 i dalje.

⁵⁹ EIOPA, Final Report on the Prudential Treatment of Sustainability Risks for Insurers, 2024, dostupno na adresi: https://www.eiopa.europa.eu/publications/final-report-prudential-treatment-sustainability-risks-insurers_en, 23. 5. 2025. 103–121.

⁶⁰ Petra Hielkema, „The Future of Cloud Computing and AI in the EU Insurance Sector“, *Contribution to the Eurofi Magazine*, September 2024, https://www.eiopa.europa.eu/publications/future-cloud-computing-and-ai-eu-insurance-sector_en, 23. 5. 2025.

Implementacija AVI će imati duboke i dalekosežne pozitivne, ali i negativne efekte na delatnost osiguranja u EU, jer primena već postoji u praksi.⁶¹ Jedna od vodećih osiguravajućih kuća „Munich Re“ se u produženom periodu priprema i investira za razvoj VI. U kratkim crtama kroz naredne paragrafe parafriziraćemo taj, po našem mišljenju veoma značajan pristup oslonjen na citirani izvor. Smatraju da osiguravač može da unapređuje svoju operativnu efikasnost korišćenjem VI, mašinskog učenja i standardizovanjem poslovnih procesa. U procesu ugovaranja osiguranja, podaci velikog obima se upotrebljavaju u funkciji unapređenja tačnosti modela predviđanja rizika, usmeravaju namere i raspoloženje osiguravača, identifikuju se nove mogućnosti unakrsne ponude i prodaje usluga osiguranja, uz zadovoljne korisnike koji ostvaruju pozitivno iskustvo. Postojeći *know-how*, iskustvo i resursi nisu više adekvatni da pružaju mogućnost osiguravačima da koriste enormne obime podataka.

Negativne kritike u kontekstu složenosti primene Akta o VI su brojne u literaturi, počevši od složenosti samog propisa, brojnih izazova u njegovoj implementaciji, potencijalnih administrativnih opterećenja i dr.⁶² Komisija je u februaru 2025. godine objavila Smernice o definiciji sistema VI, upravo u cilju pojednostavljenja Akta. U tim smernicama data je praktična primena pravnog koncepta predviđena Aktom o veštačkoj inteligenciji, kao svojevrsna pomoć dobavljačima i svim uključenim osobama u ovoj oblasti, zbog obezbeđenja delotvorne primene. Navedene smernice objavljene su zajedno sa Smernicama o zabranjenim praksama VI. Jačanje inicijativa na nivou EU, pogotovo Akcijskim planom za kontinent VI iz aprila 2025. godine, u toku je. Evropa nastoji da postane globalni predvodnik u oblasti VI.⁶³

Prihvatanje, razvoj i uspešna aplikacija AI će biti pravi izazov za osiguravače u EU, a i za zemlje van EU u Evropi, pogotovo za zemlje kandidate. Razlog leži u činjenici nerazvijene institucionalne i regulatorne infrastrukture i prakse, na nižem nivou po svim kriterijumima o odnosu na članice EU.

V Implikacije i preporuke za Srbiju

Budućnost za Srbiju, kao zemlju u statusu kandidata za članstvo u EU, i činjenicu da su dominantna osiguravajuća društva u stranom vlasništvu, naročito iz

⁶¹ Patric Greene, „AI transformation in insurance underwriting: Unlocking the power of predictive models“, July 2024, https://automation-solutions.munichre.com/AI-Insurance-ebook.html?utm_source=website_medium=CTA-blog&utm_campaign=AI-underwriting-blogpost&utm_content=GC, 25. 5. 2025.

⁶² Nuno Sousa e Silva, The Artificial Intelligence Act: Critical Overview, 2024, <https://ssrn.com/abstract=4937150>; Sandra Wachter, „Limitations and Loopholes in the EU AI Act and AI Liability Directives: What This Means for the European Union, the United States, and Beyond“, *Yale Journal of Law & Technology*, Vol. 26, No. 3/2024, Almada, Marco, The EU AI Act in a Global Perspective, 2025, SSRN: <https://ssrn.com/abstract=5083993>, 17. 9. 2025.

⁶³ <https://digital-strategy.ec.europa.eu/en/library/commission-publishes-guidelines-prohibited-artificial-intelligence-ai-practices-defined-ai-act>; <https://digital-strategy.ec.europa.eu/en/factpages/ai-continent-action-plan>, 17. 9. 2025.

EU, jesu prediktivni modeli procena rizika, te upravljanja operacijama. Harmonizacija sa Aktom o veštačkoj inteligenciji EU je od izuzetnog značaja. Kada prethodno navedena regulativa bude usvojena, osiguravači će, takođe, s njom morati da se usklade. Veštačka inteligencija će srpskim osiguravačima otvarati nove mogućnosti obavljanja zadataka, na brži i efikasniji način, uštedu troškova i naročito efektivnije korišćenje ljudskog faktora. Modeli VI će učiniti procese reosiguranja bržim. Otvoriće se nove mogućnosti marketinških kampanja koje su visoko personalizovane. Procesi prijave štete, procene i naplate će biti pojednostavljeni i valjaniji uz veće zadovoljstvo osiguranika, manje sporova, zloupotreba i pronevera. Ljudski potencijali – zaposleni u osiguranju, biće efikasnije korišćeni kao vrsta pružanja kompleksne pomoći u procesu finalne verifikacije odluka VI. Iskustva osiguranika će se unapređivati. Personalizovane ponude i praćenje tokom životnog veka polise učiniće da mnoge neprijatne instance u tom procesu budu opravdano eliminisane. Planovi će biti bolje prilagođeni potrebama osiguranika i razvoju tržišta, uz zaštitu privatnosti i eliminisanje rasprostranjenosti agenata osiguranja. Detekcija prevara će sniziti potrebe za skupim eksternim sistemima s ljudskim faktorom. Glavni izazovi će biti u procesu kreiranja novih alata, pri čemu će osiguravajuće kuće u Srbiji u većini dobiti već standardni alat koji koriste centrale i grupe u EU, što će zahtevati angažovanje talenata kao jedan skup, osetljiv i dugotrajan proces.

Osiguravajuća društva u EU i u Srbiji već dugo posluju u veoma složenom okruženju pravnih i regulatornih normi i sistema. Realno je očekivati da će uvođenje VI povećati angažovanje regulatora, ne samo u EU već i na globalnom nivou. Budućnost pripada etičkoj primeni VI, transparentnoj od modela donošenja odluka do praćenja ciklusa osiguranja i zaštite bezbednosti podataka. Osiguravači u Srbiji moraće da obezbede odgovorno korišćenje VI, uz promociju poštene primene, korporativne odgovornosti i kredibilnosti, transparentnosti i potpune pravne usaglašenosti. Svakako da taj pristup otvara seriju važnih pitanja harmonizacije regulative u Srbiji sa onom u EU.⁶⁴

Nacionalna asocijacija komesara za osiguranje odredila je da svi učesnici u tom procesu (osiguravači, entiteti posrednici, oni što igraju aktivnu ulogu u ovom procesu tokom životnog ciklusa VI, rejting agencije, pružaoci usluga o podacima, savetodavne organizacije, promoteri i dr.) treba da poštuju principe o veštačkoj inteligenciji.⁶⁵ Ti principi predstavljaju smernice za učesnike na relaciji veštačka inteligencija – osiguranje, mada nemaju težinu zakonske obaveze, jer primena nije pravno

⁶⁴ Ivana B. Ljutić *et al.*, „European Sustainability Reporting Standards: Lack of Progress, Alignment, and Harmonization in Western Balkans“, *Economic Analysis: Applied Research in Emerging Markets. Special issue articles*. Vol. 57, No. 2/2024, 45–46.

⁶⁵ NAIC, „National Association of Insurance Commissioners (NAIC) Principles on Artificial Intelligence (AI)“, Aug- 14, 2020, https://content.naic.org/sites/default/files/inline-files/AI%20principles%20as%20Adopted%20by%20the%20TF_0807.pdf, 25. 5. 2025.

obavezna. Smisao je da princip informiše i uspostavlja generalna očekivanja od svih učesnika i sistema VI osnaživanjem koncepata odgovornosti poslovanja, regulatorne usaglašenosti, transparentnosti, bezbednosti i poštenih ali i robustnih rezultata. Razvoj dopunskog održivog zdravstvenog osiguranja u Srbiji će se u značajnoj meri bazirati na uvođenju VI kao komplementarne usluge obaveznom zdravstvenom osiguranju, uz otvaranja perspektiva efikasnog upravljanja zdravstvenim rizikom.⁶⁶

Unapređenje prekogranične interdisciplinarne saradnje će uvođenjem veštačke inteligencije dobiti novi zamah i eksponencijalno povećavati broj istraženih slučajeva. Napredne metode i tehnologije koje uvodi VI biće nezamenljiv alat u efikasnoj borbi protiv prevara u domenu osiguranja.⁶⁷ Osiguravajuća društva u Srbiji će kroz intenzivno korišćenje VI povećavati promet, učiniti usluge osiguranja dostupnim širem krugu korisnika, uz kontinuirano snižavanje troškova, pogotovo u sferi digitalne operativne otpornosti (DORA), GDPR i AVI.

VI Zaključak

Primena veštačke inteligencije (VI) u sektoru osiguranja u Evropskoj uniji predstavlja fundamentalnu transformaciju koja donosi značajne operativne prednosti, ali istovremeno postavlja složene pravne i etičke izazove. Akt o veštačkoj inteligenciji (AVI) EU pruža sveobuhvatan regulatorni okvir koji ima za cilj da osigura odgovornu, pouzdanu i etičku upotrebu VI, pogotovo u visokorizičnim segmentima osiguranja, kao što su određivanje cena i procena rizika. Analiza je pokazala da je transparentnost algoritama, pravna odgovornost za odluke donete uz pomoć VI, te zaštita ličnih podataka (u skladu sa GDPR-om) od ključnog značaja za izgradnju poverenja korisnika i stabilnost tržišta. Implementacija AVI zahteva od osiguravajućih društava procenu nivoa rizika postojećih i planiranih aplikacija veštačke inteligencije, uspostavljanje novih modela korporativnog upravljanja i menadžmenta rizika, kao i kontinuirani monitoring usklađenosti. Iako VI obećava povećanu efikasnost, personalizaciju usluga i efikasniju prevenciju prevara, izazovi poput potencijalne diskriminacije osiguranika i potrebe za nezavisnom revizijom algoritama moraju biti rešeni. Za Srbiju, kao zemlju kandidata za članstvo u EU, sa dominantnim osiguravajućim društvima u stranom vlasništvu iz EU, prihvatanje i harmonizacija s regulativom EU u oblasti VI je imperativ. To podrazumeva ne samo usvajanje relevantnih zakonskih rešenja, već i jačanje IT infrastrukture, kontinuiranu obuku zaposlenih i razvoj sopstvenih eksperata. Budućnost osiguranja leži u etičkoj i transparentnoj primeni VI, koja će omogućiti brže i efikasnije procese, od ugovaranja polisa do rešavanja šteta,

⁶⁶ Nataša Petrović Tomić, „Dopunsko zdravstveno osiguranje u funkciji doprinosa razvoju održivog sistema zdravstvene zaštite u Republici Srbiji“, *Tokovi osiguranja*, br. 1/2024, 7 i dalje.

⁶⁷ Miloš M. Petrović, „Neophodnost bliže međunarodne saradnje različitih ustanova u borbi protiv prevara osiguranja“, *Tokovi osiguranja*, br. 3/2020, 57–66; I. Tošić, 69–85.

uz istovremenu zaštitu prava i privatnosti osiguranika. Regulatorna tela, kako u EU tako i u Srbiji, imaće ključnu ulogu u kreiranju dinamičke ravnoteže između inovacija i neophodne zaštite, osiguravajući da razvoj VI u osiguranju služi dobrobiti društva.

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REGULATION OF ARTIFICIAL INTELLIGENCE IN THE EUROPEAN UNION IN THE FIELD OF INSURANCE

REVIEW SCIENTIFIC PAPER

Summary

This paper provides a concise legal analysis of the deployment of artificial intelligence (AI) in the insurance sector within the European Union (EU), with a particular focus on its relevance and utility for the regulatory approach to this area in Serbia – the future regulatory framework. AI influences and transforms a range of industries, and the insurance industry represents a significant field for the application of new technologies, including claims processing automation, service personalization, and fraud prevention. The key research problem focuses on harmonizing the dynamic development of AI with the existing regulatory framework in the EU, raising questions of algorithm transparency, legal liability, and personal data protection. The paper thoroughly examines the EU Artificial Intelligence Act, which classifies AI systems according to risk level, with systems intended for risk assessment and pricing classified as high-risk in life and health insurance. The need for continuous monitoring of insurers' compliance, increasing employee literacy regarding AI use, and significant penalties for non-compliance with regulations are emphasized.

Keywords: artificial intelligence, insurance, regulation, EU AI Act.

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I. Introductory considerations

The primary objective of this paper is to analyze the current state and prospects of AI regulation in the insurance industry of the European Union. The paper specifically and comprehensively examines the approach to identifying key regulatory challenges and potential implications for insurance companies and insurance service users, and consequently investigates relevant EU initiatives and regulations relating to the deployment of AI. This primarily concerns the Artificial Intelligence Act (AI Act), together with an assessment of its potential impact on innovation and the protection of rights in the insurance industry. The issue of legal liability and personal data protection is particularly significant in the field of insurance and the deployment of artificial intelligence in the context of the General Data Protection Regulation (GDPR).² Finally, the paper seeks, to a significantly lesser extent, to provide insights that may be useful for consideration of the future regulatory framework in Serbia in this field.

To achieve the previously defined research objectives, the paper employs a combination of qualitative research methods. Primarily, an analysis of relevant EU regulations and legal acts was conducted. The adopted version of the Artificial Intelligence Act was examined as the primary focus, along with other sector-specific regulations that indirectly affect the deployment of AI in insurance. An analysis of selected approaches and solutions in the EU regarding the regulation of AI in insurance were analysed, based on available studies, reports, academic and professional literature, as well as reports from EU institutions and other international organizations dealing with issues of artificial intelligence and insurance.

II. Legal framework for AI in the European Union and the insurance sector

The EU approach to artificial intelligence is based on excellence and trust, where the European Union views AI as “part of our lives”.³ Citizens and companies should be able to use AI and benefit from its advantages while enjoying a sense of safety, protection, and respect for fundamental rights. It appears to us that the preceding sentence holds great significance in the insurance sector. Prior to the adoption of the Artificial Intelligence Act, the EU adopted a series of documents, i.e. specific rules and measures that enable the realization of the stated approach (for example, the European Parliament Resolution on AI in the digital age was adopted

² Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, *OJ L 119*, 4. 5. 2016.

³ <https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence>, accessed on September 17, 2025.

in 2022, and the European Central Bank, among other institutions, issued its Opinion on the Artificial Intelligence Act).⁴

The European Commission Communication in the document “Artificial Intelligence for Europe² emphasizes the following: “Artificial intelligence makes life easier and helps to solve some of the world’s biggest challenges.”⁵ The EU White Paper on Artificial Intelligence indicates that the focus of AI use is precisely on those sectors in which Europe should become a global leader, such as the automotive industry, healthcare, energy, agriculture, and, particularly significant in the context of this paper, financial services.⁶

In 2018, the European Commission established the High-Level Expert Group on Artificial Intelligence (AI HLEG), which adopted Ethics Guidelines for Trustworthy Artificial Intelligence. The Ethics Guidelines define the concept of trustworthy artificial intelligence and its three components, which should be respected throughout the entire lifecycle of the system: 1) lawful AI – compliance with all applicable laws and regulations; 2) ethical AI – respect for ethical principles and values; and 3) robust AI from both technical and social aspects, as AI systems can cause harm even with good intentions.⁷ In this regard, it is highly significant to mention the report of the EIOPA (European Insurance and Occupational Pensions Authority) expert advisory group – Artificial Intelligence Governance Principles: Towards Ethical and Trustworthy Artificial Intelligence in the European Insurance Sector. The Artificial Intelligence Governance Principles presented by EIOPA summarize certain ethical and trustworthy AI principles in insurance, precisely due to its proliferation in this sector, with numerous advantages for insurance companies (more detailed risk assessments and pricing practices, more effective claims management, efficient fraud prevention, predictive accuracy, automation, new products and services, cost reduction, etc.).⁸ However, it

⁴ European Parliament resolution of 3 May 2022 on artificial intelligence in a digital age (2020/2266(INI)), available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022IP0140>; European Central Bank, Opinion on the AI Act, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021AB0040>, accessed on September 17, 2025.

⁵ Communication from the Commission to the European Parliament, the European Council, The Council, The European Economic and Social Committee and the Committee of the Regions Artificial Intelligence for Europe, available at: COM/2018/237, <https://eur-lex.europa.eu/legal-content/HR/ALL/?uri=CELEX%3A52018DC0237>, accessed on September 18, 2025, 1.

⁶ European Commission, White Paper On Artificial Intelligence – A European approach to Excellence and Trust, Directorate-General for Communications Networks, Content and Technology, available at: <https://op.europa.eu/en/publication-detail/-/publication/ac957f13-53c6-11ea-aece-01aa75ed71a1>, accessed on September 18, 2025, 3.

⁷ High-Level Expert Group on Artificial Intelligence, Ethics Guidelines for Trustworthy AI, available at: https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=60419, accessed on September 18, 2025, 2.

⁸ EIOPA, Artificial Intelligence Governance Principles (EIOPA Principles): Towards Ethical and Trustworthy Artificial Intelligence in the European Insurance Sector, 2021, available at https://www.eiopa.europa.eu/eiopa-publishes-report-artificial-intelligence-governance-principles-2021-06-17_en, accessed on September 18, 2025.

is necessary to ensure fairness, transparency, non-discrimination, and the provision of adequate explanations, which is not an easy task for insurance companies.

Therefore, EIOPA sets out principles for insurance companies using AI systems throughout their entire lifecycle. Although these principles are not binding, EIOPA notes that they will require ongoing revision in the future. The principles for insurers when using AI systems throughout the entire lifecycle are as follows: Proportionality – governance measures proportionate to the potential impact of a particular AI use case on consumers and/or insurance companies in order to achieve ethical and trustworthy use of AI; Fairness and non-discrimination – consideration of AI system outcomes, with balanced interests of all involved stakeholders; existing inequalities should not be reinforced, financial inclusion issues should be considered, the impact of rating factors (e.g. credit scores) should be mitigated, practices such as “willingness to pay” should be avoided, the principle of human autonomy should be respected, explainable algorithms should be used, etc.; Transparency and explainability – use of explainable AI models, provision of access to adequate mechanisms, and explanations should be meaningful and easily understood so as to enable stakeholders to make informed decisions; insurers must explain decisions made with the assistance of AI; Human oversight – establishment of adequate levels of human oversight, organizational structure with clearly defined roles and responsibilities, and provide training for employees; Data governance and record-keeping – insurers must ensure proper data governance in line with data protection legislation; data must be securely protected and stored; appropriate records must be kept to enable monitoring and auditing; Robustness and performance – AI systems resilient and robust; analyze potential for causing harm, monitor and continuously evaluate system performance; ensure protection against cyberattacks and the AI deployment in secure IT infrastructures.⁹

1. The European Union AI act and the insurance sector

This section of the paper is narrowly focused on a detailed analysis of the Artificial Intelligence Act, as well as its key provisions relevant to insurance, starting from risk classification and concluding with the obligations to establish and maintain requirements for high-risk systems in insurance.

The EU Artificial Intelligence Act (AI Act)¹⁰ was initially proposed in April 2021 by the European Commission. This Act aspires to be, at the global level, the leading

⁹ EIOPA, Artificial intelligence governance principles: towards ethical and trustworthy artificial intelligence in the European insurance sector, available at: https://www.eiopa.europa.eu/document/download/30f4502b-3fe9-4fad-b2a3-aa66ea41e863_en?filename=Artificial%20intelligence%20governance%20principles.pdf, accessed on September 18, 2025, 8.

¹⁰ Artificial Intelligence Act (Regulation (EU) 2024/1689 laying down harmonised rules on artificial intelligence), OJ L 2024/1689, 12 July 2024, available at: <http://data.europa.eu/eli/reg/2024/1689/oj>, accessed on May 9, 2025.

and comprehensive legal framework for AI and the risks it entails. It was finalized in 2024, when it also entered into force, while its full application is scheduled within 24 months of its entry into force. The intention is to regulate the development and deployment of AI systems in various sectors, including insurance.¹¹ The Act categorizes AI systems according to the level of risk they pose (unacceptable – prohibited; high; limited – transparency risk; minimal).¹² The European Commission has launched a series of activities expressing the need for, or seeking, contractors (subcontractors) – third parties to provide *technical assistance in the field of AI safety*. Key areas are: high-tech crime, AI safety, loss of control, manipulation, mitigation of Chemical, Biological, Radiological and Nuclear Materials Risk (CBRN) and related risks.¹³

The Artificial Intelligence Act defines an AI system as: "...a machine-based system designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers from the input it receives how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments".¹⁴ AI systems in insurance that are contrary to EU values and principles shall be prohibited, along with the elimination of those AI systems in the healthcare sector that pose significant risks to health, safety and the natural environment (critical infrastructure, education, employment, law enforcement, biometric identification).¹⁵

The fundamental principle of the said Act is the risk-based approach – regulation proportionate to the risk in relation to different economic sectors, circumstances and specific applications and uses and levels of technological development.¹⁶ Limited-risk AI systems belong to a special category, with avoidance of manipulative content, dissemination of information through communication technologies, or the misuse of emotion-recognition systems. The general rule relates to the transparency of providers of certain AI systems and of deployers, whereby natural persons receive notification that they are interacting with an AI system.¹⁷ Insurers are required to inform potential and existing clients transparently about the AI technologies they use, and how they comply with simple mechanisms for policyholders to terminate contracts.

¹¹ EU Commission, EU Artificial Intelligence Act: Up-to-date developments and analyses of the EU AI Act, available at: <https://artificialintelligenceact.eu/>, accessed on May 9, 2025

¹² Artificial Intelligence Act (AI Act), Art. 1.

¹³ EU CBRN Risk Mitigation – European Union, available at: https://cbrn-risk-mitigation.network.europa.eu/index_en#:~:text=The%20acronym%20'CBRN'%20defines%20chemical,release,%20dissemination,%20or%20impacts, accessed on May 19, 2025.

¹⁴ AI Act, Art. 3(1).

¹⁵ EIOPA, Regulatory Framework Applicable to AI Systems in the Insurance Sector, available at: https://www.eiopa.europa.eu/document/download/b53a3b92-08cc-4079-a4f7-606cf309a34a_en?filename=Factsheet-on-the-regulatory-framework-applicable-to-AI-systems-in-the-insurance-sector-july-2024.pdf, 2024, accessed on May 23, 2025.

¹⁶ AI Act, Recital 26.

¹⁷ AI Act, Art. 50.

Minimal-risk AI systems belong to the group considered to potentially cause minimal negative effects on people and the environment. This may be, for example, misuse of video games, spam filters that essentially eliminate actual information and communication, special requirements for additional insurance registration with local authorities.¹⁸

The Artificial Intelligence Act classifies insurance as a high-risk system with regard to the use of AI – specifically, AI systems intended for risk assessment and pricing in relation to natural persons in the case of life and health insurance, thus not directly within the rules on classification of high-risk AI systems (Article 6 of the Act). The reason is the significant impact on the well-being and livelihood of individuals and fundamental human rights – these sensitive systems must comply with strict and precise regulatory requirements.

Accordingly, a set of rules applies to high-risk artificial intelligence systems, encompassing obligations for AI systems in insurance relating to fundamental rights impact assessments, risk management systems, data and data governance, technical documentation, record-keeping, transparency and provision of information to deployers, quality management, human oversight, etc.¹⁹

The use of AI systems in the insurance sector imposes a number of additional specific requirements, primarily regarding providers of developed AI systems, such as provider quality management systems, their obligations concerning documentation (insurance companies using AI systems must maintain technical documentation as part of existing documentation); financial institutions keep records automatically generated by the high-risk AI system as part of the documentation retained pursuant to the relevant EU financial services legislation.²⁰ Providers of high-risk AI systems, pursuant to Article 72 of the Act, establish a post-market monitoring system and create documentation for the system (proportionate to the nature and risks of the AI system). Financial institutions that already have their own post-market monitoring system and plan may integrate them into their existing processes, in order to ensure consistency, accuracy and reduce burden.

Furthermore, the Artificial Intelligence Act (AI Act) prohibits the use of AI systems that deliberately manipulate human behavior (manipulative or deceptive techniques) or exploit vulnerabilities of sensitive social groups.²¹ The application of social scoring and citizen scoring is strictly prohibited, as is the misuse of biometric data for impermissible purposes (e.g. inferring trade union membership, race, etc.). This regulation consequently treats the use of biometric data in insurance as either

¹⁸ European Commission, Shaping Europe's digital future, available at: <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>, accessed on May 23, 2025.

¹⁹ AI Act, Section 2 – Requirements for high-risk AI systems.

²⁰ Analysis pursuant to Articles 8 to 23 of the AI Act, Section 2.

²¹ AI Act, Art. 5.

high-risk or entirely prohibited. The *Digital Services Act (DSA)* and the *Digital Markets Act (DMA)* aim to create a safer and more secure digital environment in the EU, ensuring the protection of users' fundamental rights and establishing market stability that offers a level playing field for all participants.²²

It is also important to emphasize the activities of other international organizations in the field of AI. The Organisation for Economic Co-operation and Development (OECD) adopted AI Principles, which are not legally binding, and cooperates with the European Commission regarding global monitoring and analysis of AI development.²³ The United Nations also promotes global cooperation on AI regulation, and has adopted a series of documents in this area, as has the Council of Europe.²⁴

2. Application and challenges of AI Regulation in Insurance

The challenges and risks in the insurance sector relate to transparency, fairness and non-discrimination, and insurance companies have broad discretion in selecting governance measures in specific AI use cases throughout the entire lifecycle of the AI system, all with the aim of achieving the advantages it offers (faster and automated claims processing, more precise and detailed risk assessment, effective fraud prevention). According to the EIOPA Principles for Insurers, insurance companies should consider the following: certain lines of insurance are significant for social and financial inclusion (corporate social responsibility of insurance companies) – acting appropriately and assessing AI system outcomes, so that AI does not further reinforce inequalities through disproportionate impact on consumers in vulnerable situations due to personal circumstances; using explainable AI systems; establishing human oversight (appointing an employee, i.e. a data protection officer and an AI officer); defining clear roles and responsibilities of employees, as well as ensuring employee training; in order to ensure accountability of insurance companies, it is necessary to eliminate bias in training data, keep records of the modeling methodologies used and the manner in which datasets are processed; applying AI systems in resilient and secure IT infrastructures, monitoring the accuracy of AI system predictions; adhering to applicable laws, as legislation specifically influences the selection of AI governance measures.²⁵

²² European Commission, „The Digital Services package“, available at: <https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package>, accessed on May 25, 2025.

²³ https://ai-watch.ec.europa.eu/about/collaborations/oecd-ai-policy-observatory_en, accessed on September 18, 2025.

²⁴ <https://unric.org/en/artificial-intelligence-in-the-international-sphere/>; <https://www.coe.int/en/web/artificial-intelligence/the-framework-convention-on-artificial-intelligence>, accessed on September 19, 2025.

²⁵ EIOPA Opinion on AI Governance And Risk Management, 2025, available at: https://www.eiopa.europa.eu/document/download/88342342-a17f-4f88-842f-bf62c93012d6_en?filename=Opinion%20on%20Artificial%20Intelligence%20governance%20and%20risk%20management.pdf, accessed on September 19, 2025, 5–17.

Relevant legal analysis of the application of artificial intelligence (AI) in the insurance sector in the EU is significant due to the fact that such a legal-regulatory approach will be transplanted into the regulatory segment in this area in Serbia. The new relationships that will arise in our country regarding the deployment of AI in various sectors require new regulation, i.e. legal framework. The Government of the Republic of Serbia has adopted the second Artificial Intelligence Development Strategy for the period from 2025 to 2030, which contains new objectives and measures to ensure a clear and functional institutional and legal AI framework, improve education in this field, apply AI solutions in the public and private sectors, etc. The aforementioned Strategy also identifies risks associated with AI, especially in procedures for exercising rights such as credit provision, employment, insurance, etc., as well as risks related to privacy violations when large volumes of data are collected and processed.²⁶

AI is transforming numerous industries, sectors and activities in the EU. One of the most significant areas is certainly the insurance sector, which serves as a cornerstone of the European Union's financial and banking system, and at the national level of member states. The insurance sector in Serbia is predominantly under foreign ownership of major insurance companies from the EU, which, along with the parallel process of Serbia's accession to the EU, requires that insurance law particularly closely follows the emergence and development of this new regulation. Automation of claims processing is becoming evident. The insurance services offering is increasingly personalized. Models are used for sophisticated quantitative and qualitative risk assessment, as well as fraud prevention. Insurers are offered unprecedented opportunities for improving operational efficiency, with continuous cost reduction and achieving savings, and equally importantly, improving customer experience. Thus, AI introduces the next technological revolution, but also certain unknowns and risks, which will be particularly complex in the sphere of regulation, ethics, and protection of insurance users' personal data.

Different challenges will be determined by different situations of its use. The impact of AI is like an avalanche of unstoppable and profound changes, whose ultimate course, objectives and effects cannot be precisely understood at present. EU AI legal regulation establishes an entire set of rules that national governments (creating and implementing regulations, imposing penalties), AI user companies (identifying AI systems in use, assessing risks, maintaining documentation for high-risk systems, ensuring transparency, ensuring human oversight, etc.), consumers or citizens regarding information and protection), and others. According to the AI Act (Art. 77, paragraph 2), each Member State designates public authorities, i.e. public

²⁶ Strategy for the Development of Artificial Intelligence for the Period 2025–2030, available at: https://www.srbija.gov.rs/extfile/sr/437304/strategija_vestacka_inteligencija054_cyr6.zip, accessed on September 18, 2025, 2.

bodies that will monitor and enforce obligations related to the protection of fundamental rights when using high-risk AI systems.²⁷ Additionally, national competent authorities and single points of contact are established²⁸ to handle notifications, monitor the market and take certain measures regarding the appropriate level of cybersecurity.²⁹

On this platform, we have defined the key research problem arising from the very need to harmonize the dynamic development of AI with the existing regulatory framework and practice in the EU, which is still in its early stages. At the EU level, cooperation between EU bodies and member states, information exchange, better cooperation, as well as consideration of regulatory simplification in this area is very significant, with caution that the regulatory protection provided by the AI Act remains unchanged.³⁰ An important issue is the transparency of algorithms, their public verification, i.e. who will review them and confirm their validity and correctness.³¹ The next question concerns who is legally and actually responsible for decisions made using AI. In practice, problems of potential discrimination of policyholders will arise, raising the question of how to effectively protect clients' sensitive and vital data.

Insurance companies originating from the EU will certainly have to comply with the AI Act. However, the same applies to companies providing services to EU citizens (e.g. insurers from the United Kingdom, if they plan to use AI systems in business operations on the single market or merely make them available for use on EU territory, regardless of the actual physical location of the company). After Brexit, the UK is increasingly aligning and harmonizing most of its regulation in almost all fields with the EU, either through regulatory cooperation agreements, albeit with certain delays in applying the AI Act. However, a formal adoption is expected in the near future, despite having a multitude of its own legal solutions and regulations governing this area, through a "light-touch regulatory approach".³²

²⁷ For example, Croatia has appointed various ombudsmen and agencies to protect citizens' fundamental rights in the context of AI development and deployment, available at: <https://mpudt.gov.hr/news-25399/list-of-competent-authorities-under-artificial-intelligence-act-notified/29658>, accessed on September 17, 2025.

²⁸ For more on the transposition of AI Act enforcement requirements in Italy, Germany, Luxembourg, and Spain: Theodoros Karathanasis, *The AI Act: Balancing Implementation Challenges and the EU's Simplification Agenda*, available at: <http://dx.doi.org/10.2139/ssrn.5311501>, 2025, accessed on May, 2025, 4–9.

²⁹ AI Act, Art. 70.

³⁰ T. Karathanasis, 20–23.

³¹ EIOPA, *Impact Assessment of EIOPA's Opinion on AI governance and risk management*, 2025, available at: https://www.eiopa.europa.eu/document/download/197892cf-5100-4cba-9f10-143b5e893559_en?filename=EIOPA-BoS-25-008%20-%20AI%20Opinion%20-%20Impact%20Assessment.pdf&prefLang=bg, accessed on May 20, 2025.

³² European Parliament, *The United Kingdom and artificial intelligence*, available at: [https://www.europarl.europa.eu/RegData/etudes/ATAG/2024/762285/EPRS_ATA\(2024\)762285_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2024/762285/EPRS_ATA(2024)762285_EN.pdf), accessed on May 19, 2025.

Harmonization with the AI Act is the next step for insurers, including risk assessment of AI systems in practice, conducting reviews of necessary measures and implementing continuous regulatory monitoring of their application. Insurance employees should be educated and informed about the use of AI, about all AI systems, not only high-risk ones, but also limited-risk application systems.

The Act stipulates strict sanctions for non-compliance. Financial penalties may reach up to 7% of the company's total global annual turnover for the preceding financial year for violations of provisions on prohibited AI applications, up to 3% for breaches of other obligations, and up to 1.5% for providing inaccurate, incomplete or misleading information.³³

The EU AI Act was created to ensure responsible and trustworthy use of artificial intelligence. The EU AI Act is designed to ensure responsible and trustworthy AI use. The Act promotes a regulatory framework that benefits everyone while simultaneously addressing potential risks to health, safety and fundamental human rights. In the context of imposing penalties, the role of market supervisory authorities in EU member states is significant. In the case of high-risk systems used by financial institutions, the national body that provides financial supervision over them will also be involved.³⁴

III. Legal regulation of specific issues in the use of AI in insurance

The AI Act regulation is the result of a lengthy process and cumulative efforts and investment. The next step is for insurance companies to adopt it and develop it within their value creation chain.³⁵ The Commission's objective is to ensure that the future of insurance is based on public trust, respect for human values and civil rights, with reliance on new risk assessment methods and enhancement of human safety, rights and freedoms. The AI Act introduces new corporate governance standards, with the aim that the Commission and the European AI Board cooperate effectively in implementing legal regulation, where most legal solutions will apply from August 2, 2026.

AI will impact pricing mechanisms and policies, risk assessments, as well as the provision of certain guarantees in the field of insurance. Specific regulatory requirements relate to data quality, the accounting concept of "true and fair" pre-

³³ AI Act, Art. 99.

³⁴ AI Act, Art. 74.

³⁵ EIOPA, Consultation Paper on Opinion on Artificial Intelligence Governance and Risk Management, 2025, available at: https://www.eiopa.europa.eu/document/download/8953a482-e587-429c-b416-1e24765ab250_en?filename=EIOPA-BoS-25-007-AI%20Opinion.pdf, 2025, accessed on May 23, 2025, 3.

sensation, technical documentation, and strict human oversight. AI systems will have to possess a certain system of autonomy from unnecessary human intervention, self-learning and self-development capabilities, and the ability to change and adapt. Complex actuarial models in practice will become part of future AI systems classified as high-risk models that will have to have the technical capability to be used by internal and external audits. Big data scientists are entering through wide-open doors of AI in insurance.

One of the first steps awaiting insurers in the EU is the assessment of the risk level of existing and planned AI applications, along with the creation of new corporate governance models, insurance risk management and claims assessment processes. Many insurance companies are expected to establish AI corporate governance boards tasked with creating and overseeing the implementation of an AI development strategy throughout its lifecycle. Alongside the AI Act, the following legislation is also relevant: the Insurance Distribution Directive³⁶ in the context of improving consumer protection standards, the Solvency II Directive,³⁷ as well as legal solutions for occupational retirement institutions, and the highly significant and far-reaching Anti-Money Laundering Directive.

In the EU insurance sector, algorithm-based AI systems are entering in full force. Previously, the insurance sector is required to adapt rapidly, to adopt and further develop AI systems, use machine learning, textual databases (large language models), especially in the application of so-called “smart contracts” in insurance.³⁸

The process of accelerated and perhaps excessively chaotic transformation of insurance in the EU has begun with the introduction of AI. Whether this will be a controlled or partially controlled course remains to be seen.³⁹ Certainly, a revolution in the introduction of AI in insurance and the rapid abandonment of significant segments of traditional insurance as it is now is unfolding before our eyes. Crucial changes in the quantification and risk management process are underway. New insurance services are being developed in the insurance sector. Improving the quality and scope of communication with clients is becoming imperative for insurers. In practice, new models of information and data analysis are emerging, predictive techniques are being used for making, implementing and monitoring insurance

³⁶ Directive on insurance distribution, OJ L 26, 02/02/2016, available at: <http://data.europa.eu/eli/dir/2016/97/oj>, accessed on May 24, 2025.

³⁷ Iva Tošić, “Poslovanje osiguravajućih društava u digitalnom okruženju – Šta nam donosi DORA?”, *Tokovi osiguranja*, No. 1/2025, 73.

³⁸ Angelo Borselli, “Osiguranje putem algoritma”, *Časopis za teoriju i praksu osiguranja*, No. 2/2018, 35–38.

³⁹ Branko Pavlović, Vesna Minić-Pavlović, “Snagom podataka do osiguranja budućnosti”, *Collection of Papers SORS*, 33rd Meeting of Insurers and Reinsurers, 2022, available at: <http://sors.ba/UserFiles/file/SorS/2022/Zbornik/03%20Sors%202022%20-%20Zbornik%20radova%20-%20Pavlovic.pdf>, accessed on May 20, 2025, 153–182.

business operations. The objective is effective risk management, as well as the development of new approaches to delivering highly personalized insurance services.

AI participation in the insurance value chain is growing, starting from automation processes, service personalization, fraud prevention, and risk assessment and management methods.⁴⁰ The AI regulatory system in insurance in the EU is aimed at creating a solid, stable and coherent legal framework that effectively addresses risks. On the other hand, concerns are growing in the scientific and general public regarding personal data protection, confidentiality, privacy loss, and personal security. The strategic development pathway goes through strengthening and investing in IT, expanding the possibilities of obtaining new analytical insights into data, with active participation of policyholders in the development of AI technology.

The relationship and interaction of the EU AI Act in the insurance sector and the GDPR is one of feedback loops, but also of unresolved and contradictory regulatory elements, as the issues were not harmonized during the development of these two significant frameworks.⁴¹ AI in insurance will create new data streams that will be possible to collect, systematize, analyze and used for effective decision-making and operational management in insurance in accordance with regulation. This is precisely due to the fact that the introduction of AI systems used for life and health insurance risk assessment and pricing will be classified as high-risk.

The feedback loop between the AI Act and the GDPR is crucial. The Regulation is primarily aimed at achieving the objectives of personal data protection and individual rights, while the AI Act addresses AI system safety, security, and reliability. The Act specifies aspects of complementarity by setting out the technical and organizational requirements for high-risk AI systems in insurance. The approach implies that through the application of GDPR requirements, lawfulness is ensured in policyholder data processing, which means data minimization, clear and transparent purpose of processing, limitation of insurers' rights to the data retention period, enhanced data and privacy protection.

In Croatia, an EU member state, the insurance sector is going through the storm of a true digital revolution, where new software applications and other IT technologies improve service quality and accelerate communication with clients,⁴² all in the function of profit maximization. Vehicle owners in Croatia can already assess damage using a mobile phone or tablet, with remote assistance from an insurance

⁴⁰ Mihovil Anđelinović, "Potencijal primjene umjetne inteligencije u osiguranju", *Croatian Insurance Journal*, No. 10/2024, 95–107.

⁴¹ Maja Nisevic, Arno Cuypers, Jan De Bruyne, "Explainable AI: Can the AI Act and the GDPR go out for a Date?", SSRN, 15 January 2024, available at: <https://ssrn.com/abstract=5056022>, accessed on May 24, 2025.

⁴² Zoran T. Cirić, "Važnost komunikacije s klijentima u delatnosti osiguranja", *Tokovi osiguranja*, No. 1/2024, 211–212.

expert, and the process is completed quickly.⁴³ For example, "Croatia osiguranje" has developed a special application that enables quick settlement of minor claims and on-the-spot payment without delay.⁴⁴ The advantage is better and more competitive pricing, but also fraud prevention in claims payment. At the same time, AI helps in creating highly customized offers tailored to client needs, online policy purchases, self-service data entry and access, appointment scheduling for medical examinations within health insurance policies, etc. Special attention among insurance companies in Croatia is directed toward aspects of data security protection, given the growing frequency of attacks and they are becoming increasingly risky.

A good example of the use of AI in the insurance sector in Slovenia is one of the largest companies, Zavarovalnica "Triglav", which uses a chatbot called AI TRIA with the aim of providing customer support and answering FAQs; AI that directs requests to appropriate sectors, AI for document processing and analysis, AI for damage assessment, AI for customer data analysis, etc.⁴⁵ A study by the European Parliament cites the use of AI in the insurance sector even prior to the adoption of the AI Act. Thus, the company "Royal Dutch Touring Club ANWB" provides a discount on car insurance to drivers who download an application that will monitor their driving behavior. In other companies, applications have been developed that track customer activity and lifestyle, thereby providing a discount on health insurance. A particularly controversial use of AI is found in the company 'WeSee', which employs an emotion-recognition application aimed at detecting insurance fraud and similar practices.⁴⁶

The question will also arise as to which uses of AI by insurance companies will be considered disputable. Therefore, the insurance sector in EU countries is very seriously preparing for the digital transformation of deployment of artificial intelligence.⁴⁷ New forms of insurance companies are emerging, narrowly specialized in information technologies in insurance that deal with digitalisation of processes and services (*InsurTech*), but also new risks.⁴⁸ This type of company can be defined as

⁴³ "Croatia osiguranje", available at: <https://www.netokracija.com/osiguranje-digitalizacija-croatia-osiguranje-233536>, accessed on May 16, 2025.

⁴⁴ Insurance Europe, Consumer hub, available at: <https://www.insuranceeurope.eu/priorities/2943/consumer-hub>; <https://www.osiguranje.hr/ClanakDetalji.aspx?22482>, accessed on May 16, 2025.

⁴⁵ <https://www.triglav.eu/en/media/press-releases/press-release/when-ai-tria-speaks>; <https://www.microsoft.com/en/customers/story/1752754742242485191-zavarovalnica-triglav-azure-openai-service-insurance-en-slovenia>, accessed on September 17, 2025.

⁴⁶ European Parliament, Regulatory divergences in the draft AI act, Differences in public and private sector, 2022, available at: [https://www.europarl.europa.eu/thinktank/en/document/EPRS_STU\(2022\)729507](https://www.europarl.europa.eu/thinktank/en/document/EPRS_STU(2022)729507), accessed on September 17, 2025, 17-22.

⁴⁷ Martina Perković, "Umjetna inteligencija i big data tehnologija u industriji osiguranja", *Ilab Working Papers Series*, No. 01-05, available at: <https://iilab.efzg.hr/images/Istrazivanja/iilab-wp-2021-5.pdf>, accessed on May, 2025, 4 et seq.

⁴⁸ Anat Keller, Clara Martins Pereira, Martinho Lucas Pires, "The European Union's Approach to Artificial Intelligence and the Challenge of Financial Systemic Risk", *Multidisciplinary Perspectives on Artificial Intelligence and the Law* (eds. Henrique Sousa Antunes et. al.), Springer, Cham, 2024, 415-416.

innovative use of technology in insurance and as a subset within FinTech, companies focused on financial technology.⁴⁹ Such companies develop solutions in the sphere of digital insurance services. Big data is of crucial and increasing importance as primary sources of information for insurance, being utilized for machine learning and the development of AI models. In analyses, there are also contrary views that AI will not reduce, but increase the workload of employees. Business efficiency and success will be measured by client retention and acquisition, which will in turn require growing investments in IT infrastructure and continuous employee training with the growing presence of InsurTech companies in the insurance market.⁵⁰ Climate risks, which are largely unknown, represent the greatest risks for business models and insurance market stability, as physical risks that create new challenges, with an exponential increase in various settled claims.⁵¹ All of this, in turn, requires strengthening the role of insurance and policyholder protection. Aspects of establishing legal liability for damage in the era of AI require an adequate regulatory framework. The EU opts for harmonized legal solutions, which is the correct path, whereby the focus of the regulatory response shifts toward developers in insurance, alongside the strengthening and clarification of legal liability.⁵²

Rules and regulations on non-contractual liability concerning AI represents a significant challenge in the EU, especially in light of mitigating risks associated with the use of AI and its deployment.⁵³ In this regard, the key elements of legal regulation of non-contractual liability regarding AI are rules relating to the burden of proof, collection of information about high-risk AI systems by persons seeking compensation for damage, strict liability in certain cases,⁵⁴ adaptation of national civil liability rules for AI, stricter regulation and stronger international cooperation, assessment and insurance of company liability exposure, AI system liability insurance, legal certainty, and more.⁵⁵

Legal and ethical challenges of AI deployment in insurance are numerous. Automation of claims assessment and payment will open growing potentials for

⁴⁹ Sonja D. Radenković, Azra Sućeska, Hasan Hanić, "Technological Foundations of Fintech", *Fintech in the Context of the Digital Economy Opportunity and Challenges* (ed. Hasan Hanić, Radislav Jovović), 2023, 98–99.

⁵⁰ Rastko Filipović, "Integracija veštačke inteligencije u svakodnevnost osiguranja", available at: <https://www.deloitte.com/ce/en/about/story/our-markets/deloitte-serbia/integracija-ve-take-inteligencije-u-sva-kodnevnost-osiguranja.html>, accessed on May 20, 2025.

⁵¹ EIOPA, "The role of insurers in tackling climate change: challenges and opportunities", *The EUROFI Magazine*, Stockholm, 2023, available at: https://www.eiopa.europa.eu/publications/role-insurers-tackling-climate-change-challenges-and-opportunities_en, accessed on May 21, 2025.

⁵² Ivana. B. Ljutić, "Legal Implications of Fintech", *Fintech in the Context of the Digital Economy Opportunity and Challenges*, 2023, 194–208.

⁵³ Liability Rules for AI, available at: https://commission.europa.eu/business-economy-euro/doing-business-eu/contract-rules/digital-contracts/liability-rules-artificial-intelligence_en, accessed on May 9, 2025.

⁵⁴ Emmanuela Truli, "Non-contractual Liability in the Context of Artificial Intelligence: The Long Way to New EU Legislative Tools", *European Review of Private Law*, Vol. 31, No. 1/2023, 47.

⁵⁵ European Commission, Proposal for a Directive of The European Parliament And of The Council on adapting non-contractual civil liability rules to artificial intelligence (AI Liability Directive), COM/2022/496 final.

insurance, especially for travel insurance. A tourist will be able to submit a repair receipt via mobile application, using NLP (natural language processing) and computer vision, identify relevant data (amount, date, type of service). This is followed by comparison with policy conditions and automatic approval of payouts or redirection of complex cases to an employee operator. New challenges and risks arise here, particularly related to personal data protection and the General Data Protection Regulation (GDPR).⁵⁶ The system will have to ensure policyholder data security at all stages (lawful, transparent, fair data processing, limitation to what is necessary in relation to the purpose of processing, accuracy and timeliness, archiving only as long as necessary in accordance with the purpose of processing, etc.).⁵⁷ Future steps are data anonymization using pseudonymization wherever possible, with necessary explicit policyholder consent for processing personal data through AI.

Insurers will encounter a certain degree of skepticism and concern that clients may lose trust and be inclined to initiate disputes. The solution is to resolve complaints clearly and effectively without using AI. An increasing level of policy personalization is anticipated. For vehicles, telematic data will be used: speed, kilometers traveled, driving style. AI will offer lower premiums based on risk assessment for good drivers, whereby some companies will offer more attractive (cheaper) policies to drivers who travel fewer kilometers in a certain period.

The deployment of AI raises a series of ethical issues from the aspect of applying GDPR regulation, including policyholder consent, equal treatment of policyholders, e.g. in differently populated areas, whether the habits of "sharper and more offensive" drivers are pre-classified as increased risk, and more (respect for the autonomy of natural persons, harm prevention, transparency, security, prohibition of discrimination, etc.).⁵⁸ The question of national-level regulatory alignment arises – whether policyholders are treated consistently across all countries. AI systems already store enormous amounts of data that provide the possibility of analysis and preventive identification of suspicious claims, frequent reports of similar claims, and use of potentially fraudulent service providers.

IV. The impact of European Union regulation in the field of AI and the future in the insurance sector

In the sphere of AI regulation, the EU faces challenges of false positives. Specifically, there is a risk that legitimate claims insurance claims may be incorrectly

⁵⁶ European Parliament, The impact of General Data Protection Regulation (GDPR) on artificial intelligence, 2020, available at: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/641530/EPRS_STU\(2020\)641530_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/641530/EPRS_STU(2020)641530_EN.pdf), accessed on May 23, 2025.

⁵⁷ GDPR, Art. 5.

⁵⁸ The impact of GDPR on artificial intelligence, 50, 73 *et seq.*

flagged as fraudulent. This, in turn, causes policyholder dissatisfaction and increases the risk of potential legal disputes. Regulation and practice should enable and establish a balance between insurance efficiency and accuracy of claims compensation. Algorithms can be biased and nationally determined by specific data, cultural elements and social norms, and social objectivity is a necessary condition.⁵⁹ Algorithms in the future will have to be transparent and enable continuous revision, and AI systems must adapt more quickly in order to maintain efficiency. The future development of AI in insurance has prospects only with models of better risk assessment and development of insurance services.⁶⁰ Particularly significant in this regard are risk assessments of natural and artificially caused disasters with human factors (floods, earthquakes, wildfires, tsunamis, etc.). AI will analyze geolocation and climate data, historical time series, topography, demographic flows, and more. The use of AI in the previous context results in better and more precise policy design. Regulatory compliance and oversight by supervisory authorities, increased client trust, and strict adherence to ethical standards, and enhanced transparency of insurance services are all of critical importance.

The implementation of the AI Act will have profound and far-reaching positive, but also negative effects on the insurance sector in the EU, as application already exists in practice.⁶¹ One of the leading insurance companies, "Munich Re", has been preparing and investing in AI development over an extended period. In brief, through the following paragraphs we will paraphrase this approach, which, in our opinion, is very significant and based on the cited source. They believe that an insurer can improve its operational efficiency by using AI, machine learning and standardizing business processes. In the insurance contracting process, big data is used to enhance the accuracy of risk prediction models, guide the intentions and behavior of insurers, identify new cross-selling opportunities and insurance services sales, all while ensuring a positive experience for satisfied policyholders. Existing *know-how*, experience and resources are no longer adequate for insurers to fully exploit vast datasets.

Negative critiques in the context of the complexity of AI Act implementation are numerous in the literature, starting from the complexity of the regulation itself,

⁵⁹ EIOPA, Final Report on the Prudential Treatment of Sustainability Risks for Insurers, 2024, available at: https://www.eiopa.europa.eu/publications/final-report-prudential-treatment-sustainability-risks-insurers_en, accessed on May 23, 2025, 103–121.

⁶⁰ Petra Hielkema, "The Future of Cloud Computing and AI in the EU Insurance Sector", *Contribution to the Eurofi Magazine*, September 2024, available at: https://www.eiopa.europa.eu/publications/future-cloud-computing-and-ai-eu-insurance-sector_en, accessed on May 23, 2025.

⁶¹ Patric Greene, "AI transformation in insurance underwriting: Unlocking the power of predictive models," July 2024, available at: https://automation-solutions.munichre.com/AI-Insurance-ebook.html?utm_source=website_medium=C-TA-blog&utm_campaign=AI-underwriting-blogpost&utm_content=GC, accessed on May 23, 2025.

numerous challenges in its implementation, potential administrative burdens, and more.⁶² In February 2025, the Commission published Guidelines on the definition of AI systems, precisely with the aim of simplifying the Act. These guidelines provide practical application of the legal concept outlined in the AI Act, as a kind of assistance to providers and all persons involved in this area, to ensure effective implementation. The aforementioned guidelines were published together with the Guidelines on prohibited AI practices. Strengthening of EU-level initiatives, especially through the AI Continent Action Plan from April 2025, is currently underway. Europe strives to become a global leader in the field of AI.⁶³

The adoption, development and successful deployment of AI will be a major challenge for insurers in the EU, as well as for non-EU European countries, particularly candidate countries. This is due to the underdeveloped institutional and regulatory infrastructure and practices, which remain at a lower level by all criteria compared with EU members.

V. Implications and recommendations for Serbia

The future outlook for Serbia, as a candidate country for EU membership, and the fact that dominant insurance companies are under foreign ownership, particularly from the EU, lies in predictive risk assessment models and operations management. Harmonization with the EU Artificial Intelligence Act is of exceptional importance. When the aforementioned regulation is adopted, insurers will also have to comply with it. Artificial intelligence will open new possibilities for Serbian insurance companies to perform tasks in a faster and more efficient manner, achieve cost savings and enable particularly more effective utilization of human resources. AI-based models will make reinsurance processes faster. New opportunities will open for highly personalized marketing campaigns. Claims reporting, assessment and settlement processes will be simplified, resulting in higher policyholder satisfaction, fewer disputes, abuses and frauds. Human resources – employees within the insurance sector, will be deployed more efficiently, providing complex support in the final verification of AI-driven decisions. Policyholder experiences will be improved. Personalized offers and monitoring throughout the policy lifecycle will ensure that many unpleasant instances in this process are justifiably eliminated. Plans will be

⁶² Patric Greene, "AI transformation in insurance underwriting: Unlocking the power of predictive models", July 2024, available at:

https://automation-solutions.munichre.com/AI-Insurance-ebook.html?utm_source=website_medium=C-TA-blog&utm_campaign=AI-underwriting-blogpost&utm_content=GC, accessed on May 25, 2025.

⁶³ <https://digital-strategy.ec.europa.eu/en/library/commission-publishes-guidelines-prohibited-artificial-intelligence-ai-practices-defined-ai-act>; <https://digital-strategy.ec.europa.eu/en/factpages/ai-continent-action-plan>, accessed on September 17, 2025.

better aligned with policyholder needs and market development, while ensuring privacy protection and elimination of the prevalence of insurance agents. Fraud detection will reduce the need for expensive external systems with human factors. The main challenges will be in the process of creating new tools, whereby insurance companies in Serbia will in most cases receive already standard tools used by their EU-based parent companies and groups. This will require engagement of talent as a sensitive and long-term process.

Insurance companies in the EU and in Serbia have long operated in a highly complex environment of legal and regulatory norms and systems. It is reasonable to expect that the deployment of AI will increase regulatory engagement, not only in the EU but also at the global level. The future belongs to ethical AI deployment, transparent from decision-making models to monitoring of the insurance cycle and data-security protection. Insurers in Serbia will have to ensure responsible use of AI, promoting fairness, corporate responsibility and credibility, transparency, and full legal compliance. This approach certainly opens a series of important questions relating to Serbia's regulatory harmonization with the EU framework.⁶⁴

The National Association of Insurance Commissioners has determined that all participants in this process (insurers, intermediary entities, those playing an active role in this process throughout the AI lifecycle, rating agencies, data-service providers, advisory organizations, promoters, and others) should respect the principles on AI.⁶⁵ These principles represent guidelines for participants operating at the intersection of AI and insurance, although they do not impose legally binding obligations, as deployment is not legally compulsory. Their purpose is to inform and establish general expectations for all participants and AI systems by strengthening the concepts of responsible business conduct, regulatory compliance, transparency, security and fair yet robust results. The development of supplementary voluntary health insurance in Serbia will be significantly based on the introduction of AI as a complementary service to compulsory health insurance, opening perspectives for effective health risk management.⁶⁶

Enhancement of cross-border interdisciplinary cooperation will gain new momentum through AI deployment, and exponentially increase the number of investigated cases. Advanced methods and technologies introduced through AI will be

⁶⁴ Ivana B. Ljutić *et al.*, "European Sustainability Reporting Standards: Lack of Progress, Alignment, and Harmonization in Western Balkans", *Economic Analysis: Applied Research in Emerging Markets, Special Issue articles*, Vol. 57, No. 2/2024, 45–46.

⁶⁵ NAIC, "National Association of Insurance Commissioners (NAIC) Principles on Artificial Intelligence (AI)," Aug. 14, 2020, available at: https://content.naic.org/sites/default/files/inline-files/AI%20principles%20as%20Adopted%20by%20the%20TF_0807.pdf, accessed on May 25, 2025.

⁶⁶ Nataša Petrović Tomić, "Dopunsko zdravstveno osiguranje u funkciji doprinosa razvoju održivog sistema zdravstvene zaštite u Republici Srbiji", *Tokovi osiguranja*, No. 1/2024, 7 *et seq.*

an indispensable tool in the effective fight against fraud in the insurance domain.⁶⁷ Insurance companies in Serbia will, through intensive use of AI, increase turnover, make insurance services available to a wider range of users, with continuous cost reduction, especially in the domains of digital operational resilience (DORA), GDPR and the AI Act.

VI. Conclusion

The deployment of artificial intelligence (AI) in the insurance sector in the European Union represents a fundamental transformation that brings significant operational advantages, but simultaneously poses complex legal and ethical challenges. The EU Artificial Intelligence Act (AI Act) provides a comprehensive regulatory framework aimed at ensuring responsible, trustworthy and ethical use of AI, especially in high-risk insurance areas, such as pricing and risk assessment. The analysis has demonstrated that algorithmic transparency, legal liability for decisions made with the assistance of AI, and the protection of personal data (in accordance with the GDPR) are of crucial importance for building user trust and market stability. Implementation of the AI Act requires insurance companies to assess the risk level of existing and planned AI deployment, establish new corporate governance and risk management models, as well as to ensure continuous compliance monitoring. Although AI promises increased efficiency, service personalization, and more effective fraud prevention, challenges such as potential discrimination of policyholders and the need for independent algorithm auditing must be addressed. For Serbia, as an EU candidate country, with dominant insurance companies under foreign ownership from the EU, alignment with EU regulation in the field of AI is imperative. This implies not only the adoption of relevant legal solutions, but also strengthening of IT infrastructure, continuous employee training and development of domestic experts. The future of insurance lies in the ethical and transparent deployment of AI, which will enable faster and more efficient processes, from policy underwriting to claims settlement, with simultaneous protection of policyholder rights and privacy. Regulatory bodies, both in the EU and in Serbia, will have a crucial role in creating a dynamic balance between innovation and necessary protection, ensuring that the development of AI in insurance serves the welfare of society.

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