INSIGHT PUBLISHING CENTER

CONFERENCE ON

INTERNATIONAL SCIENTIFIC DEVELOPMENTS: INSIGHTS INTO MODERN SCIENCE AND INNOVATIVE PRACTICES

VOLUME 2
ISSUE 8



AUGUST
SEPTEMBER
2026



INSIGHT PUBLISHING CENTER PUBLICATION

CONFERENCE ON INTERNATIONAL SCIENTIFIC DEVELOPMENTS: INSIGHTS INTO MODERN SCIENCE AND INNOVATIVE PRACTICES

Collection of materials of the republican scientific-practical online conference on the topic

VOLUME 2
ISSUE 8

CONFERENCE ON INTERNATIONAL SCIENTIFIC DEVELOPMENTS: INSIGHTS INTO MODERN SCIENCE AND INNOVATIVE PRACTICES

This collection features theses and articles published in the Conference on international scientific developments: insights into modern science and innovative practices.

Our journal's mission is to promote creative ideas and innovative solutions for the development of modern education. We focus on implementing and designing new educational technologies and fostering integrated learning.

The articles in this collection are a valuable resource for a wide audience, including university professors, teachers at all levels (from high school to primary school), independent researchers, graduate students, and talented undergraduates. The materials of this journal can be used by university professors and teachers, academic lyceum and vocational college teachers, general education school teachers, independent researchers, master's students, scientific staff, talented students, and researchers working in this field.

Please note: The authors are personally responsible for the accuracy of the numbers, data, and citations in the articles included in the journal's collection.

EDITORIAL TEAM

Prof. Péter Csermely, DSc, PhD, Professor at Semmelweis University, Budapest
Prof. Ulrike Diebold, Professor of Surface Physics at TU Wien Austria
Ulrike Diebold,
Professor- Professor of Surface Science at the Institute of Applied Physics
Péter Csermely,
Professor and researcher in biochemistry and complex networks,
Tatyana Shaumyan,
Russian Academy of Sciences: Head of the Center for Indian Studies; Professor of South Asian Politics.
Antonio García Martínez,
PhD in Economics, Professor of Economics, University of Barcelona
Jurayev Khayrullo Fayzievich,
Professor in technical science, Bukhara state technical university
Abdurakhmonov Olim Rustamovich,
Professor in technical science, Bukhara state technical university
Gafurov Karim Xakimovich,
Professor in technical science, Bukhara state technical university
Narziyev Mirzo Sayidovich
Doctor of Technical Sciences (DSc), Bukhara state technical university
Tukhtaeva Zebo Sharifovna,
Doctor of pedagogical sciences, Bukhara State Technical University
Usmonov Akhtam Usmonovich,
PhD in technical science, Associate professor, Bukhara state technical university
Qobilov Hasan Xalilovich
PhD, Associate professor, Bukhara state technical university
Abidov Kamildjan Zarifovich
PhD in technical science, Associate professor, Bukhara state technical university

TABLE OF CONTENTS

1.	**Гелдибаев Бегенч Егендурдыевич**, ОБЗОР ИССЛЕДОВАНИЙ VISION-LANGUAGE MODELS ДЛЯ ЗАДАЧ ВИЗУАЛЬНОГО РАСПОЗНАВАНИЯ	**5**
2.	**Ergashov Ziyodullo Bobir og'li**, O‘ZBEKISTON HUDUDIDA QADIMGI SIVILIZATSIYALARNING SHAKLLANISHI	**10**
3.	**L.K. Jamolova, H.Sh.Sharifov**, FACTORS AFFECTING THE EFFICIENCY OF SOLAR PANELS	**15**
4.	**X.R. G‘afforov**, DIAGNOSIS OF THE LEVEL OF FORMATION OF PROFESSIONAL COMPETENCIES OF STUDENTS OF TECHNICAL HIGHER EDUCATION INSTITUTIONS	**18**
5.	**Sag‘dullayeva Zuhra Ne’matulla qizi**, KOMPENSATSIYAVIY YONDASHUV ASOSIDA OLIY TA’LIM MUASSASALARIDA FRANSUZ TILINI O‘QITISH METODIKASI	**22**
6.	**Astanakulov Ulugbek Khusanovich**, PEDAGOGICAL APPROACHES TO TEACHING WRITING IN EFL: A COMPARATIVE THEORETICAL ANALYSIS	**28**
7.	**Нуруллаева Фарангиз Толибжон кизи**, КОГНИТИВНО-СЕМАНТИЧЕСКИЕ МЕХАНИЗМЫ КОНЦЕПТУАЛЬНОЙ МЕТАФОРЫ В СОВРЕМЕННОМ РУССКОМ ЯЗЫКЕ	**32**
8.	**Zikirullayeva Nilufar Dilmurod kizi**, THE IMPORTANCE OF GREEN ECONOMY IN WORLD ECONOMIC DEVELOPMENT	**35**
9.	**Mansurova Rayxona Adham qizi, S. Chimpo‘latova**, XX ASR MISR ADABIYOTINING YIRIK NAMOYANDASI YOZUVCHI YAHYO HAQQINING HAYOTI VA IJODI	**40**
10.	**Abdiqodirova O'g`iloy Abdirayim qizi**, RAQAMLI TA’LIM TEXNOLOGIYALARI YORDAMIDA TALABALARDA MUSTAQIL TA’LIM KO‘NIKMALARINI RIVOJLANTIRISHNING PEDAGOGIK ASOSLARI	**44**
11.	**Kodirova Dilfuza**, SATIRICAL ELEMENTS IN THE POLITICAL AND SOCIAL CRITICISM OF JONATHAN SWIFT	**49**
12.	**Meliyeva Sevara Faxriddin qizi**, THE CONNOTATIVE FIELD OF SUBSTANDARD UNITS IN UZBEK AND ENGLISH	**52**
13.	**Муратбаева Азиза Даулетбаевна**, СПОСОБЫ И МОДЕЛИ ОККАЗИОНАЛЬНЫХ ПРЕОБРАЗОВАНИЙ В ПЕРИОДИЧЕСКОЙ ПЕЧАТИ	**57**
14.	**Rustamov Akbar Askarovich**, TAKING INTO ACCOUNT THE AGE-RELATED CHARACTERISTICS OF 6–7-YEAR-OLD CHILDREN IN THE PROCESS OF INDIVIDUALIZED CHESS INSTRUCTION	**62**

15.	**Махамадалиева Н.Р., Хамидуллаева Ф.И., Бабаджанова Н.Т.**, ЦИТОКИНОВЫЙ ПРОФИЛЬ СМЕШАННОЙ СЛЮНЫ КАК МАРКЕР РИСКА РАЗВИТИЯ ГИНГИВИТА У ПОДРОСТКОВ ПОСЛЕ ПЕРЕНЕСЁННОЙ COVID-19 ИНФЕКЦИИ	**70**
16.	**Salimov Nurali Ramazon o`g`li**, O‘ZBEKISTONDA SUN`IY INTELLEKT TEXNOLOGIYALARIDAN FOYDALANGAN HOLDA KIBERXAVFSIZLIKNI RIVOJLANTIRISH ISTIQBOLLARI	**73**
17.	**Muxammedova Dilshoda Nodir qizi**, PUBLITSISTIK USLUBDA QO‘LLANUVCHI TOPONIMIK PERIFRAZALARNING SINONIMIK XUSUSIYATLARI	**78**
18.	**Safoyev Nodirjon Nematjon o‘g‘li**, O‘ZBEK TILIDAGI AVTOMATIK TARJIMA SIFATINI OSHIRISH UCHUN TAKOMILLASHTIRILGAN BERT YONDASHUVLARI	**84**
19.	**Mustafayeva Matlubaxon Ilhomjon qizi**, SPECIFIC FEATURES OF IDIOMS IN ENGLISH AND RUSSIAN LITERARY TEXTS	**88**
20.	**Умаров Бобурбек Носир угли, Жураев Ахтам Хамроевич**, ИССЛЕДОВАНИЕ ОСНОВНЫХ ПОКАЗАТЕЛЕЙ ВЕРМИКУЛИТА В КАЧЕСТВЕ АДСОРБЕНТА	**93**
21.	**Нуров С.С., Мусаев А.Х.**, МАТЕМАТИЧЕСКОЕ МОДЕЛИРОВАНИЕ ГАЗОПЕРЕКАЧИВАЮЩЕГО АГРЕГАТА ДЛЯ СИНТЕЗА СИСТЕМЫ АВТОМАТИЧЕСКОГО УПРАВЛЕНИЯ В СРЕДЕ MATLAB/SIMULINK	**95**
22.	**Nazarov Alimardan Kamol o’g’li**, OTA-ONA VA O‘SMIR MUNOSABATLARINI O’GANISHGA OID METODIKALARINING ILMIY ASOSLARI	**100**
23.	**Hamidova Nozima Sirojiddin qizi, Temirova Matlab Ibodovna**, ISHLATILGAN O‘SIMLIK YOG‘LARINI QAYTA ISHLASH ORQALI QO‘SHIMCHA QIYMATLI MAHSULOTLAR OLISHNING TEXNOLOGIK IMKONIYATLARI	**102**
24.	**Azamat Orunbayev**, THE EFFECTS OF AEROBIC-STEP AND PILATES EXERCISES ON STRENGTH, FLEXIBILITY, ANAEROBIC POWER, BALANCE, AND BODY COMPOSITION	**106**
25.	**Saminbayev Mashhurbek Ravshanbek o‘g‘li, Qobulov Boburmirzo Ulug‘bek o‘g‘li**, ANIME YOSHLAR DUNYOQARASHIDA O‘LIM VA HAYOT FALSAFASINING TRANSFORMATSIYASI	**112**
26.	**Yuldasheva Sevara Bakhodir kizi**, THE SPECIFIC FEATURES OF THE OGHUZ LANGUAGE IN WRITTEN MONUMENTS OF THE 11TH-12TH CENTURIES	**116**
27.	**Журакулов Санжар**, КРИТЕРИИ И ПОКАЗАТЕЛИ ОЦЕНКИ ЭФФЕКТИВНОСТИ САМОСТОЯТЕЛЬНОГО ОБУЧЕНИЯ ФИЗИКЕ	**121**

	СТУДЕНТОВ ТЕХНИЧЕСКИХ НАПРАВЛЕНИЙ НА ОСНОВЕ ЦИФРОВЫХ ТЕХНОЛОГИЙ	
28.	**Yuldoshov Elchinbek Qosim ugli, Khayitov A.A.**, DISPENSARY EXAMINATION FOR ENT DISEASES	**124**
29.	**Nuraliyev Islom Saidaliyevich**, BO‘LAJAK O‘QITUVCHILARDA TESTOLOGIK KOMPETENTLIKNI RIVOJLANTIRISHNING AMALIY HOLATI VA XORIJIY TAJRIBANING QIYOSIY-PEDAGOGIK TAHLILI	**129**
30.	**Qazoqov Jo‘rabek Roziqovich, Uvayzov Saidjon Komilovich, Mizomov Muhammad Saydulla o`g`li**, OPERATOR INTERFEYSLARINI ISHLAB CHIQISHDA ERGONOMIK YONDASHUVLAR	**135**
31.	**Maxkamova Xilolaxon Xasanxon qizi**, FORUM FOCUSED INSTROCTION IN COMUNICATIVE ENGLISH CLASSES: BENEFITS AND LIMITATIONS	**139**
32.	**Boboyeva Zebo Hasanovna**, OLIY TA'LIM TIZIMIDA PEDAGOGIK MADANIYATNI SHAKLLANTIRISHNING INNOVATSION YONDASHUVLARI	**142**
33.	**Yarasheva Dilnoza Ismoil qizi**, METHODOLOGY FOR DETERMINING FLEXIBILITY IN FEMALE HANDBALL PLAYERS	**147**
34.	**Serikbayeva Dina Altinbayeva**, BOSHLANG‘ICH SINFLARDA MATEMATIK TAFAKKURNI RIVOJLANTIRISHDA INNOVATSION YONDASHUVLAR	**151**
35.	**Atamurodova Guljon Komilovna, Abdullayeva Maryambibi Jumaniyazovna**, TALABALARDA IJTIMOIY FAOLLIKNI INNOVATSION PEDAGOGIK TEXNOLOGIYALAR ASOSIDA RIVOJLANTIRISHNING METODIKASI	**155**
36.	**Abdullayva Mohlaroyim Nodirbek qizi, Rustamova Fotima Umidjon qizi, Rustamova Zuhra Umidjon qizi**, THE INFLUENCE OF DIET ON OVULATORY FUNCTION IN WOMEN AFTER OVARIAN CAUTERIZATION: A LITERATURE REVIEW	**159**
37.	**Kuchkarov Anvarbek Shermirzayevich**, SCIENTIFIC AND PEDAGOGICAL FOUNDATIONS FOR IMPROVING PHYSICAL EDUCATION AND SPORTS PEDAGOGY IN THE CONTEXT OF DIGITAL TRANSFORMATION	**163**
38.	**Ne’matjonov Turg‘unpo‘lat Shokirjon o‘g‘li**, ANALYSIS OF HISTORICAL TOPONYMS IN THE BABURNAMA	**168**
39.	**Mamatov Axadbek**, BUXORO VOHASIDA NAQSHBANDIYLIK TA'LIMOTINING SHAKLLANISH BOSQICHLARI	**171**

40.	**To‘rayeva Charosxon Shavkat qizi**, MAKTABGACHA YOSHDAGI BOLALARNING INTELLEKTUAL RIVOJLANISHIDA MONTESSORI METODIKASINING SAMARADORLIGI	**177**
41.	**Tosheva Kamola Komiljon qizi**, TRAINING LOAD PLANNING FOR HIGHLY SKILLED FEMALE WEIGHTLIFTERS	**183**
42.	**Khamraeva Zamira, Razhabov Rustam, Khovaylo Vladimir**, MAGNETIC PROPERTIES AND ELECTRICAL RESISTIVITY OF FE(NI)-MN-AL MELT-SPUN RIBBONS	**189**
43.	**Sirojev Shoxrux Fayzullo o‘g‘li**, THE ROLE OF VOLLEYBALL IN DEVELOPING PHYSICAL AND PSYCHOLOGICAL READINESS	**191**
44.	**Otabek Turlibekov , Oliy Akhmedov , Avazbek Taniberdiyev**, SYNTHESIS, PROPERTIES AND POTENTIAL APPLICATIONS OF QUATERNARY AMMONIUM DERIVATIVES OF CHITOSAN OBTAINED FROM PLEUROTUS OSTREATUS	**194**
45.	**Курамбаева Дилафруз Шаукатовна**, ОБРАЗ УМАЙ В МИФОЛОГИЧЕСКИХ ПРЕДСТАВЛЕНИЯХ КАРАКАЛПАКОВ	**202**
46.	**Keldibekov Jahongir Vali o'g'li**, XOSMAS INTEGRALLAR KONVERGENTLIGINING YANGI SHARTLARI HAMDA ULARNING DIFFERENSIAL TENGLAMALAR MODELLARIGA TATBIQI	**207**
47.	**Sharipov J.R.**, BILATERAL VERTEBRAL ARTERY HEMODYNAMIC RESPONSE IN ARTERIAL HYPERTENSION COMPLICATED BY ISCHEMIC HEART DISEASE	**212**
48.	**N.B. Saidmurodova , G.U. Lutfullaev**, MICROBIOLOGICAL CHARACTERISTICS OF THE NASAL MUCOSA IN PATIENTS WITH CHRONIC SUBATROPHIC RHINITIS ASSOCIATED WITH TYPE 2 DIABETES MELLITUS	**215**
49.	**Narbayeva Sofiya Murod qizi**, SUN'IY INTELLEKTGA ASOSLANGAN PEDAGOGIK TEXNOLOGIYALAR ORQALI OLIY TA'LIMDA TALABALARNING AKADEMIK MUVAFFAQIYATINI OSHIRISH	**225**
50.	**Sattarova Muhabbat Alijanovna**, DEVELOPING THE CREATIVE POTENTIAL OF STUDENTS IN PEDAGOGY PROGRAMS	**230**
51.	**Sattarova Muhabbat Alijanovna**, MENTORSHIP MODEL FOR WORKING WITH GIFTED STUDENTS	**232**
52.	**Sattarova Muhabbat Alijanovna**, STRUCTURAL COMPONENTS OF AN INNOVATIVE PEDAGOGICAL MODEL	**235**
53.	**Sodiqova Vazira Yaxyoqul qizi**, CURVATURE CORRESPONDING TO A SQUARE: DEFINITION AND GEOMETRIC MEANING	**237**
54.	**Xoldarova Dilfuza Komiljon qizi**, MUAMMOLI TA’LIM ASOSIDA KOGNITIV VA METAKOGNITIV O‘ZLASHTIRISH TEXNOLOGIYALARINING O‘ZIGA XOS JIHATLARI	**240**

55.	**Dusmurodova Muhayyo Faxritdin qizi**, TA’LIM JARAYONIDA SHAXSIYLASHTIRILGAN O‘QITISH ORQALI SHAXS RIVOJLANISHINI TA’MINLASH USULLARI	**247**
56.	**Jumaboyev Azizjon Sayfiddin o‘g’li**, SAMARQAND O‘LKASHUNOSLIK JAMIYATLARI FAOLIYATIDA MADANIY MEROSNI ASRASH MUAMMOLARI (XX ASRNING 20–80-YILLARI)	**253**
57.	**Файзиев М.М.**, МАТЕМАТИК РЕЖАЛАШТИРИШ АСОСИДА МАРКАЗДАН ҚОЧМА КУЧ ТАЪСИРИДА ЮҚОРИ ЭКСПЛУАТАЦИОН ХУСУСИЯТЛАРГА ЭГА БЎЛГАН АНИЗОТРОП СТРУКТУРАЛИ ЦИЛИНДРСИМОН ФИЛЬТРЛАР ОЛИШ ТЕХНОЛОГИЯСИНИНГ ОПТИМАЛ ПАРАМЕТРЛАРИНИ АНИҚЛАШ	**256**
58.	**Бабажанова Навбахор**, “ПСИХОЛОГИЧЕСКАЯ ПРИРОДА ОБРАЗА «ЛИШНЕГО ЧЕЛОВЕКА” В РОМАНЕ И. С. ТУРГЕНЕВА “ДНЕВНИК ЛИШНЕГО ЧЕЛОВЕКА”	**260**
59.	**Абдурахимова Зарнигора Бахтийор кизи, Абдураимова Н.Р.**, РОЛЬ ОБРАЗОВАНИЯ И ПРОФЕССИОНАЛЬНОЙ ПЕРЕПОДГОТОВКИ ЖЕНЩИН В УСЛОВИЯХ РАЗВИТИЯ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА	**262**
60.	**Sultonov Bobirxon Muhammadxonovich**, FUQAROLIK HUQUQIDA MAJBURIYATLARNING BAJARILISHINI TA'MINLASHNING O'ZIGA XOS XUSUSIYATLARI	**267**
61.	**Akramov Ibrohimjon Oxunjon o‘g‘li**, OILAVIY MUNOSABATLARDA TENG HUQUQLILIK PRINSIPI HUQUQIY MAZMUNI	**270**
62.	**М.М. Файзиев**, ПЛАСТМАССА МАҲСУЛОТЛАРИНИ ИШЛАБ ЧИҚАРИШ ЖАРАЁНИДА МОЙДАН ҚАТТИҚ ЗАРРАЧАЛАРНИ АЖРАТИБ ОЛИШ УЧУН ФИЛЬТР ЭЛЕМЕНТЛАРИНИ ОЛИШ ТЕХНОЛОГИЯСИ	**274**
63.	**Turaev Ahmed Kholmominovich**, DIRECTIONS THAT INFLUENCE THE FORMATION OF TESTOLOGICAL COMPETENCE	**277**
64.	**Ixtiyor G‘aniyevich Jalilov**, THE HISTORICAL EXPERIENCE OF THE MAHALLA INSTITUTION AND PUBLIC OVERSIGHT IN SOUTHERN UZBEKISTAN	**280**
65.	**Ixtiyor G‘aniyevich Jalilov**, FACTORS INFLUENCING THE DEVELOPMENT OF FAMILY ENTREPRENEURSHIP IN THE MAHALLAS OF SOUTHERN UZBEKISTAN	**285**
66.	**Yuldashev G‘ulomjon, Qosimov Bekzod Ulug‘bek o‘g‘li**, KARKIDON SUV OMBORI ATROFI TUPROQ PROFILIDA TUZLAR REJIMI VA MIKROELEMENTLARNING RADIAL-LATERAL DIFFERENSIATSIYASI	**289**

67.	**Kamol Akbarov,** KARKIDON SUV OMBORI ATROFI TUPROQ PROFILIDA TUZLAR REJIMI VA MIKROELEMENTLARNING RADIAL-LATERAL DIFFERENSIATSIYASI	**295**
68.	**Jo'rabekova Gulshoda,** KOGNITIV USLUBNING YOSHGA BOG'LIQ XUSUSIYATLARI	**298**
69.	**Sharobiddinova Gulshodaxon Rustamjon qizi,** IKKI O'LCHOVLI SIMPLEKSDAGI ALMASHTIRILGAN VOLTERRA OPERATORLARINING DINAMIKASI HAQIDA	**301**
70.	**Аминова Моҳирахон Мўминжон қизи,** СОЗДАНИЕ ХИМИЧЕСКИХ ПРЕПАРАТОВ ДЛЯ ЗАЩИТЫ СЕЛЬСКОХОЗЯЙСТВЕННЫХ КУЛЬТУР НА ОСНОВЕ ПРОМЫШЛЕННЫХ ОТХОДОВ И ИХ ПРИМЕНЕНИЕ	**304**
71.	**Rakhmanova Nozimakhon Ibrokhimjon qizi,** NATIONAL-CULTURAL UNITS IN ENGLISH AND UZBEK: A CROSS-LEVEL COMPARATIVE ANALYSIS OF THEIR SEMANTIC, LINGUOCULTURAL, AND PRAGMATIC FEATURES ABSTRACT	**307**
72.	**Dehqonova Shahnoza Anvar qizi,** MAKTABGACHA TA'LIM TASHKILOTI RAHBARINING BOSHQARUV KOMPETENSIYASINI RIVOJLANTIRISH: ZAMONAVIY YONDASHUVLAR VA SAMARALI MEXANIZMLAR	**320**
73.	**Feruz Yuldashev,** ENTREPRENEURIAL DEVELOPMENT OF HIGHER EDUCATION INSTITUTIONS IN UZBEKISTAN: COMPARATIVE EVIDENCE FROM PUBLIC AND PRIVATE UNIVERSITIES	**325**
74.	**Nurullayev Mirxon Muhammadovich,** AGENTLI SUN'IY INTELLEKT TIZIMLARIDA AXBOROT OQIMI XAVFSIZLIGIGA TAHDIDLAR TASNIFI VA HIMOYALASH USULLARINING QIYOSIY TAHLILI	**329**
75.	**Soibov Johongir Ergash o`g`li,** HUDUDIY ISHLAB CHIQARISH MAJMUALARINI SAMARALI ENERGIYA BILAN TA'MINLASH SXEMALARINI TANLASH MASALALARI	**335**
76.	**Shukurova Ozoda Odil qizi,** RAQAMLI PLATFORMALARDA XIZMAT KO'RSATISH SHARTNOMALARINING ELEKTRON SHAKLI VA UNI TASDIQLASH MUAMMOLARI	**337**
77.	**Qosimov Oybek Abdumannon o'g'li,** PAST INERSIYALI ENERGIYA TIZIMLARIDA GIBRID SHAMOL-QUYOSH ELEKTR STANSIYALARINING CHASTOTA BARQARORLIGIGA TA'SIRINI BAHOLASH	**341**
78.	**Teshaboyev Rivojiddin Ibrohimjon o'g'li,** KUCH TRANSFORMATORLARIDA ENERGIYA ISROFLARI VA ULARNI KAMAYTIRISH USULLARI	**346**

79.	**Ergasheva Zilola Ko‘paysin qizi,** MUSIQIY-DIDAKTIK O‘YINLAR VOSITASIDA MAKTABGACHA YOSHDAGI BOLALARNING MUSIQIY QOBILIYATLARINI RIVOJLANTIRISH METODIKASI	**348**
80.	**To`lqinova Gulsanam Bahtiyor qizi,** TEMIR-BETON KONSTRUKSIYALARNING ZILZILABARDOSHLIGINI OSHIRISHNING ZAMONAVIY, AMALIY USULLARI	**354**
81.	**To‘xtaraliyev Sohibjon Murodjon o‘g‘li, Xolmatov Dilshod Sottorjonovich,** TEXNOLOGIK CHANG XOSSALARINI TAVSIFLASH VA CHANG TOZALASH QURILMASI SINOVLARINI METODIK ASOSLASH	**358**
82.	**G`oziyev Islomjon Ravshanovich, N.N.Umaraliyev,** GAZ GENERATORI REAKSIYA ZONASIDAGI HARORATNI MASOFADAN O‘LCHASH VA MONITORING QILISH TIZIMINI YARATISH	**362**
83.	**Xudoynazarova Nodira Shaydullayevna,** O‘ZBEKISTONDA HUDUDIY (SHAHAR VA QISHLOQ) AYOLLARINING TADBIRKORLIK IDENTIKLIGI VA MOTIVATSION SOHASI QIYOSIY TAHLILI	**366**
84.	**Бобобекова Шохисита Хоззиржон кизи,** МЕТОДИЧЕСКИЕ ОСНОВЫ ПЕРСОНАЛИЗАЦИИ ОБУЧЕНИЯ В ЦИФРОВОЙ ОБРАЗОВАТЕЛЬНОЙ СРЕДЕ ОБЩЕОБРАЗОВАТЕЛЬНОЙ ШКОЛЫ	**369**
85.	**Berdiyorova Mohira Nurali qizi,** MAHALLIY MINERAL QO‘SHIMCHALAR ASOSIDA GIPS BOG‘LOVCHILARINING FIZIK-MEXANIK XOSSALARINI YAXSHILASH	**376**
86.	**Ashurova Sevara Ilxom qizi,** UMUMIY O‘RTA TA’LIM MAKTABLARIDA O‘QUVCHI-QIZLAR O‘RTASIDA VOLEYBOL SPORT TURINI OMMALASHTIRISHNING PEDAGOGIK SHART-SHAROITLARINI TAKOMILLASHTIRISH	**383**
87.	**Muradova Shodiya Zokir qizi,** CHO‘LPON HIKOYALARIDA AYOLLAR ERKI G‘OYALARI («NOVVOY QIZ» VA «QOR QO‘YNIDA LOLA» HIKOYALARI ASOSIDA)	**388**
88.	**Norboyeva Farangiz Alisher qizi,** BOSHLANG‘ICH SINF O‘QUVCHILARINING NUTQIY FAOLLIGINI RIVOJLANTIRISHDA NUTQNI TANISH TEXNOLOGIYALARIDAN FOYDALANISH METODIKASI	**391**
89.	**Orifjanov Shavkatbek Shuxratbek o’g’li,** TEXNOLOGIK JARAYONLARDA NOSOZLIKLARNI SUN’IY INTELLEKT ASOSIDA OLDINDAN PROGNOZLASH USULLARI	**397**
90.	**Khaydarova Ziyodaxon Azimjon qizi,** AN IMPLICIT UPWIND DIFFERENCE SCHEME FOR THE BOUNDARY CONTROL PROBLEM OF HYPERBOLIC SYSTEMS	**402**

91.	**Boynazarova Munojat,** BO‘LAJAK BOSHLANG‘ICH TA’LIM PEDAGOGLARINI TAYYORLASHDA INTEGRATIV YONDASHUVNING XORIJIY TAJRIBA BILAN UYG‘UNLASHUV IMKONIYATLARI	**405**
92.	**Qosimov Fazliddin,** ENERGETIKA TIZIMLARI VA MAJMUAlARINING BARQAROR RIVOJLANISHIDA RAQAMLI BOSHQARUV VA MOSLASHUVCHAN ENERGIYA MAJMUAlARINING O‘RNI	**412**
93.	**T.B.Xakimov,** IKKILAMCHI ISSIQLIKNI ELEKTR ENERGIYASIGA AYLANTIRUVCHI SAMARALI TERMOELEKTROGENERATORLAR	**420**
94.	**Shukurova Saida Qudratovna,** YOSHLAR TARBIYASI SAMARADORLIGINI OSHIRISHDA OILA, MAHALLA VA TA’LIM MUASSASASI HAMKORLIGINING PEDAGOGIK MEXANIZMLARI	**424**
95.	**Yo'ldoshev Otabek,** BETON VA ASFALT ZAVODLARIDA DOZALASH JARAYONLARINI PLC VA SCADA ASOSIDA AVTOMATLASHTIRISH	**432**
96.	**Baxshilloyev Habibulloxon Umarovich,** XAVFSIZLIK HODISALARINI TAHLIL QILISH VA XAVFNI BAHOLASH USULLARINING ZAMONAVIY HOLATI	**437**
97.	**Berdiyorova Mohira Nurali qizi,** MAHALLIY XOMASHYOLAR VA MODIFIKATSIYALANGAN GIPS BOG'LOVCHILARI ASOSIDA G'OVAKLI NAMLIKKA CHIDAMLI DEVORBOP MATERIALLAR TARKIBINI VA TEXNOLOGIYASINI ISHLAB CHIQISH	**442**
98.	**Rasulova Oygul Salom qizi,** VIRUSLAR EVOLUTSIYASI VA MUTATSIYALARINING YANGI INFEKSION KASALLIKLAR PAYDO BO'LISHIDAGI AHAMIYATI	**448**
99.	**Namazova Luiza Zavqi qizi,** INNOVATSION PEDAGOGIK TEXNOLOGIYALAR ORQALI O'QUVCHILARNING MUSTAQIL FIKRLASHINI RIVOJLANTIRISH	**453**
100.	**Jo'rayeva Yoqutxon A'zamxo'ja qizi,** BOLALAR INTENSIV TERAPIYASIDA MARKAZIY VENOZ KATETERIZATSIYANI UTT-NAVIGATSIYASI OSTIDA BAJARISH: ASORATLAR PROFILAKTIKASI VA GEMODINAMIK KO'RSATKICHLAR MONITORINGI	**459**
101.	**Urazova Azadaxan Tursinbayevna,** TOG‘AY MUROD QISSALARIDA MIF VA AFSONALAR TALQINI.	**465**
102.	**Iroda Berdiyorova Shuhrat qizi,** KOREA'S UNI-PASS ELECTRONIC CUSTOMS AND SINGLE WINDOW: RECOMMENDATIONS FOR UZBEKISTAN	**468**

KOREA'S UNI-PASS ELECTRONIC CUSTOMS AND SINGLE WINDOW: RECOMMENDATIONS FOR UZBEKISTAN

Iroda Berdiyorova Shuhrat qizi
Jahon iqtisodiyoti va diplomatiya universiteti Jahon iqtisodiyoti yo‘nalishi magistranti

Qabul qilindi: 28.09.2026
Ko‘rib chiqildi: 29.09.2026
Tasdiqlandi: 30.09.2026

Keywords:
UNI-PASS, electronic customs, single window, trade facilitation, risk management, Korea Customs Service, Uzbekistan.

Abstract. This paper analyzes UNI-PASS—the Korea Customs Service’s electronic customs clearance and "Single Window" system—as one of the world's most advanced digital customs models. It examines the system's architecture, development stages, and impact on clearance times, while also comparing it with the current state of the customs "Single Window" system in Uzbekistan. Based on this analysis, the article puts forward practical recommendations for implementing the Korean model in Uzbekistan, including proposals regarding inter-agency integration, data-driven risk management, cargo tracking, performance assessment, and institutional cooperation with Korea.

Introduction

For landlocked countries like Uzbekistan, the speed and predictability of customs procedures directly determine export competitiveness. Prior to 2020, customs clearance in Uzbekistan took an average of 4 hours and 38 minutes, and approximately 70 percent of all cargo underwent physical inspection; this led to queues and risks of corruption.[1] Trade costs between Central Asian economies remain equivalent to a tariff of approximately 136 percent; for comparison, this figure stands at 57 percent among China, Japan, and the Republic of Korea.[2]

The Republic of Korea’s electronic customs system offers one of the clearest examples of how such barriers can be overcome. The UNI-PASS system, developed by the Korea Customs Service (KCS), is an environment integrated with the national "Single Window" system that fully enables paperless clearance.[3] The Korean model is of particular relevance to Uzbekistan, given that the country's "single window" system in the customs sector was implemented within the framework of a Korean

[1] https://mag.wcoomd.org/magazine/wco-news-109-issue-1-2026/uzbekistan-customs-scales-up-digital-transformation/

[2] https://www.unescap.org/kp/2026/digital-and-sustainable-trade-facilitation-united-nations-special-programme-economies

[3] https://mag.wcoomd.org/magazine/wco-news-79/uni-pass-koreas-customs-modernization-tool/

grant project.[4] Therefore, this article analyzes which elements of Korea's UNI-PASS system have already been implemented in Uzbekistan and which ones could be applied in practice.

UNI-PASS: architecture, development and results

Architecture. UNI-PASS consists of 77 modules integrated into five subsystems: "Single Window," clearance management, cargo management, information management, and administrative management. The system processes approximately 430 million declarations and data on 50 million travelers annually. Its "Single Window" system interconnects 39 government agencies with approximately 430,000 traders, customs brokers, carriers, and warehouse operators. The Integrated Risk Management system (IRM-PASS) generates risk profiles for goods, companies, and travelers based on customs data and information provided by other agencies.[5]

Development. The system was built step by step over 25 years rather than in a single project[6]:

Year	Stage
1991	Basic plan for EDI-based clearance automation
1994–1996	Electronic export (1994) and import (1996) clearance
2005	Internet clearance portal and risk management system
2006	Single window opened with 8 regulatory agencies
2008	Single window expanded to 15 agencies
2016	Fourth-generation UNI-PASS; single window covers 40 agencies

Results. Export clearance, which previously took more than a day, now takes 1.5 minutes, while import clearance has been reduced from over two days to 1.5 hours [1]. The total duration of logistics processes decreased from 9.6 days in 2004 to 2 days in 2012; meanwhile, by 2012, the savings in annual logistics costs for businesses amounted to approximately 178 million US dollars.[7]

Barriers overcome. Two lessons are particularly useful. First, connecting agencies does not mean they automatically use the system: in the early years, some regulators processed almost no applications through the single window—for instance,

[4] https://www.carecprogram.org/uploads
[5] https://mag.wcoomd.org/magazine/wco-news-79/uni-pass-koreas-customs-modernization-tool/
[6] https://tfadatabase.org/en/members/korea-republic-of/article-10-4-3
[7] https://tfadatabase.org/en/members/korea-republic-of/article-10-4-3

0.0% at the Food and Drug Administration and 0.1% at the Veterinary Quarantine Service. Second, success required mapping requirements: the mandates of 55 regulatory agencies applied to 5,720 (47%) of the 12,232 ten-digit tariff lines, and redundant requirements had to be eliminated prior to automation.[8]

Uzbekistan's customs single window: current state and gaps

Korean roots. In Uzbekistan, the "Single Window" system was established as a joint project between the State Customs Committee and the Korea International Cooperation Agency (KOICA). The minutes of discussions were signed on August 7, 2013, and the main grant agreement on December 3, 2013; project implementation was launched following the President's Resolution No. PP-2224 dated August 18, 2014. The Ministry of Health, veterinary and plant quarantine services, the Committee for Environmental Protection, the "Uzstandart" and "Uzexpertiza" agencies, and the Central Bank were involved as co-implementing agencies.[9] At that stage, the customs service itself identified three weaknesses in the system: the need to engage an external developer for any modifications, a dependency on that developer for further system improvements, and a requirement to strengthen information security.

Recommendations for practical application in Uzbekistan

Uzbekistan has already implemented the key components of the Korean model—electronic declaration, automated risk management, and a national "Single Window" system. Another important aspect of the model is that Korea has succeeded in ensuring the "Single Window" system operates effectively across all agencies and even beyond national borders. In this regard, the following measures are proposed:

1. Creating a national "requirements map" based on HS codes. Drawing on the Korean experience, this involves listing all permits, certificates, and inspections required by each regulatory body for every ten-digit tariff line, eliminating redundant data, and publishing this matrix on the trade information portal. This enables entrepreneurs to know in advance which documents are required for a specific product and lays the foundation for full automation.
2. Mandating electronic processing and monitoring the extent of its use by agencies. The Korean experience demonstrates that connecting an agency to the system does not guarantee its actual utilization. Uzbekistan should require that border control permits be issued exclusively through the "single window" system and should publish quarterly data on the proportion of electronic applications handled by each agency and the average processing time.
3. Gradual expansion of the "Single Window" system. Such a phased roadmap, with established timelines, should incorporate all agencies issuing trade-related permits into the system; the process should begin with

[8] https://tfadatabase.org/en/members/korea-republic-of
[9] https://www.carecprogram.org/uploads

sanitary, veterinary, quality, and environmental documentation that is being aligned with the World Customs Organization (WCO) Data Model.

4. Dependence on external developers needs to be reduced. While the initial "Single Window" system could only be modified by the developer who created it, the customs service has since built a strong in-house IT team. The "Single Window" system should be redeveloped based on a modular architecture—managed via internal resources and featuring application programming interfaces (APIs) for agencies, banks, and logistics companies—much like the UNI-PASS system operates through its modules and accessible source code.

Conclusion

UNI-PASS demonstrates that electronic customs systems yield full benefits only when combined with a single window encompassing all regulatory agencies, harmonized data, and integrated risk management.

Uzbekistan, having established its single window with Korean support, has already achieved significant results in automating clearance processes and managing risk. The next phase involves transforming the single window from a system for exchanging national permits into a comprehensive cross-border trade platform. Mapping requirements by HS code, mandating electronic issuance based on usage metrics, developing internal modules, integrating cargo tracking, and exchanging test data with Korea and transit partners will help achieve the fourth stage of the World Customs Organization's Digital Customs Maturity Model by 2027.

REFERENCES

1. Cho, H.-G., & Nam, S.-H. (2016). UNI-PASS: Korea's Customs modernization tool. *WCO News*, 79. mag.wcoomd.org
2. Korea Customs Service. (n.d.). *Korea Single Window* [Presentation]. WTO Trade Facilitation Agreement Database. tfadatabase.org
3. Mavlonov, A. Y. (2026). Uzbekistan Customs scales up digital transformation. *WCO News*, 109(1). mag.wcoomd.org
4. State Customs Committee of the Republic of Uzbekistan. (n.d.). *Customs modernization by introducing "Single Window" unified customs information system in Uzbekistan* [Presentation]. CAREC Program. carecprogram.org
5. UN ESCAP, UNECE. (2026). *Digital and Sustainable Trade Facilitation in the United Nations Special Programme for the Economies of Central Asia (SPECA) 2025*. Bangkok: United Nations. repository.unescap.org
6. Ministry of Investments, Industry and Trade of the Republic of Uzbekistan. (2024, November 14). Uzbekistan joins the "Framework Agreement on Facilitation of Cross-border Paperless Trade in Asia and the Pacific". gov.uz