

ISO/IEC TR 24030:2024-04 (E)

Information technology - Artificial intelligence (AI) - Use cases

Contents

Page

- Foreword..... vi
- Introduction..... vii
- 1 Scope..... 1
- 2 Normative references..... 1
- 3 Terms and definitions..... 1
- 4 Abbreviated terms..... 1
- 5 Applications..... 3
 - 5.1 General..... 3
 - 5.2 Application domains..... 3
 - 5.3 Deployment models..... 4
 - 5.4 Examples of AI applications..... 4
- 6 Use cases..... 8
 - 6.1 General..... 8
 - 6.2 Sources of use cases..... 8
 - 6.3 Guidance for submitting use cases..... 8
 - 6.4 Fields of the use case template..... 8
 - 6.4.1 General..... 8
 - 6.4.2 ID..... 9
 - 6.4.3 Use case name..... 9
 - 6.4.4 Application domain..... 9
 - 6.4.5 Deployment model..... 9
 - 6.4.6 Objective(s)..... 9
 - 6.4.7 Narrative..... 9
 - 6.4.8 Stakeholders and stakeholder perspectives..... 9
 - 6.4.9 Data characteristics..... 10
 - 6.4.10 Key performance indicators (KPIs)..... 10
 - 6.4.11 Features of use case..... 10
 - 6.4.12 Threats and vulnerabilities..... 11
 - 6.4.13 Challenges and issues..... 11
 - 6.4.14 Trustworthiness considerations..... 11
 - 6.4.15 Use of standards; opportunities for future standardization..... 13
 - 6.4.16 SDGs to be achieved..... 13
 - 6.5 Basic statistics..... 13
 - 6.5.1 Use cases by application domain..... 13
 - 6.5.2 Use cases by task..... 14
 - 6.5.3 Use cases by relevant SDGs..... 14
 - 6.6 Societal concerns..... 15
- 7 Use cases summaries..... 15
 - 7.1 General..... 15
 - 7.2 Agriculture..... 21
 - 7.2.1 Real-time segmentation and prediction of plant growth dynamics using low-power embedded systems equipped with AI (use case 126)..... 21
 - 7.2.2 Smart agriculture (use case 156)..... 23
 - 7.2.3 Forecasting of crop yield using decision support system (use case 173)..... 24
 - 7.3 Digital marketing..... 26
 - 7.3.1 Improving conversion rates and return on investment (RoI) with AI technologies (use case 53)..... 26
 - 7.3.2 AI system for digital marketing in retail services (use case 185)..... 27

| | | |
|--------|---|-----|
| 7.4 | e-commerce/e-business..... | 29 |
| 7.4.1 | Emotion-sensitive AI customer service (use case 42)..... | 29 |
| 7.4.2 | Deep learning-based user intent recognition (use case 43)..... | 31 |
| 7.4.3 | AI virtual assistant for customer support and service (use case 106)..... | 33 |
| 7.4.4 | Customer relation management (CRM) (use case 157)..... | 34 |
| 7.5 | Education..... | 36 |
| 7.5.1 | A recommendation system for industrial training (use case 23)..... | 36 |
| 7.5.2 | An intelligent marking system (use case 83)..... | 38 |
| 7.5.3 | Intelligent educational robot (use case 84)..... | 40 |
| 7.5.4 | AI system to intelligent campus (use case 85)..... | 41 |
| 7.5.5 | AI adaptive learning platform for personalized learning (use case 102)..... | 43 |
| 7.5.6 | AI adaptive learning mobile app (use case 124)..... | 45 |
| 7.6 | Energy..... | 46 |
| 7.6.1 | Smart energy grid (use case 166)..... | 46 |
| 7.7 | Fintech..... | 48 |
| 7.7.1 | Detection of fraud based on collusion (use case 20)..... | 48 |
| 7.7.2 | Virtual bank assistant (use case 57)..... | 49 |
| 7.7.3 | Forecasting prices of commodities (use case 91)..... | 51 |
| 7.7.4 | Financial advice and asset management with AI (use case 114)..... | 52 |
| 7.7.5 | Loan in 7 minutes (use case 119)..... | 54 |
| 7.7.6 | Predictive risk intelligence (use case 164)..... | 55 |
| 7.8 | Healthcare..... | 57 |
| 7.8.1 | AI system to predict post-operative visual acuity for LASIK surgeries (use case 24)..... | 57 |
| 7.8.2 | AI system to quality control of electronic medical record (EMR) in real time (use case 50)..... | 59 |
| 7.8.3 | Discharge summary classifier (use case 79)..... | 60 |
| 7.8.4 | Generation of clinical pathways (use case 80)..... | 62 |
| 7.8.5 | Hospital management tools (use case 81)..... | 63 |
| 7.8.6 | Predicting relapse of a dialysis patient during treatment (use case 87)..... | 64 |
| 7.8.7 | Instant triaging of wounds (use case 89)..... | 66 |
| 7.8.8 | Detection of fraudulent medical claims (use case 90)..... | 68 |
| 7.8.9 | AI platform for chest CT-scan analysis (early stage lung cancer detection) (use case 105)..... | 69 |
| 7.8.10 | Neural network formation of 3D-models orthopaedic insoles (use case 121)..... | 71 |
| 7.8.11 | Search of undiagnosed patients (use case 127)..... | 72 |
| 7.8.12 | A clinical decision support system (use case 131)..... | 73 |
| 7.8.13 | Symptom assessment (hypothetical) (use case 134)..... | 76 |
| 7.8.14 | Making using evidence-based medicine and AI (use case 167)..... | 77 |
| 7.8.15 | AI-service for blood cells and bone marrow scans analysis (use case 168)..... | 79 |
| 7.8.16 | AI-service for chest X-ray and chest CT (use case 169)..... | 81 |
| 7.8.17 | Intelligent video analytics system (use case 170)..... | 83 |
| 7.8.18 | Retrospective analysis (use case 172)..... | 84 |
| 7.8.19 | Robotization of the federal hotlines on COVID-19 issues (use case 174)..... | 85 |
| 7.8.20 | Use of computer vision innovative technologies for analysis of medical images and further application (use case 175)..... | 87 |
| 7.9 | Home and service robotics..... | 89 |
| 7.9.1 | Device control using AI consisting of cloud computing and embedded system (use case 132)..... | 89 |
| 7.10 | ICT..... | 91 |
| 7.10.1 | AI system to help mobile phones to have better picture effect (use case 32)..... | 91 |
| 7.10.2 | Product failure prediction for critical IT infrastructure (use case 86)..... | 93 |
| 7.10.3 | AI-based optimized field dispatch (use case 151)..... | 94 |
| 7.10.4 | Wireless network failure prediction (use case 152)..... | 96 |
| 7.10.5 | AI performance evaluation of AI-powered messaging bots (use case 176)..... | 97 |
| 7.11 | Insurance..... | 100 |
| 7.11.1 | AI services for health insurance companies (use case 161)..... | 100 |
| 7.12 | Knowledge management..... | 102 |
| 7.12.1 | Water crystal mapping (use case 77)..... | 102 |
| 7.12.2 | AI system with a digital knowledge centre for utilizing the knowledge in the organization (use case 187)..... | 104 |
| 7.13 | Legal..... | 106 |
| 7.13.1 | AI contract management (use case 120)..... | 106 |

| | | |
|---------|--|------------|
| 7.14 | Manufacturing | 108 |
| 7.14.1 | Quality assurance solution based on AI, to detect defects on wind turbines blades (use case 4) | 108 |
| 7.14.2 | Generative design of mechanical parts (use case 15) | 110 |
| 7.14.3 | Powering remote drilling command centre (use case 36) | 111 |
| 7.14.4 | Quality improvement of adhesive products, based on AI (use case 37) | 113 |
| 7.14.5 | Empowering autonomous flow meter control- reducing time taken to “proving of meters” (use case 40) | 114 |
| 7.14.6 | Improvement of productivity of semiconductor manufacturing (use case 82) | 116 |
| 7.14.7 | AI decryption of magnetograms (use case 104) | 119 |
| 7.14.8 | Analysing and predicting acid treatment effectiveness of bottom hole zone (use case 110) | 120 |
| 7.14.9 | Automatic classification tool for full size core (use case 112) | 122 |
| 7.14.10 | Collaborative AI to assist workers with production and assembly in factories (use case 179) | 124 |
| 7.15 | Media and entertainment | 126 |
| 7.15.1 | Video on demand publishing intelligence platform (use case 58) | 126 |
| 7.15.2 | AI system for promoting DX in customer attraction services at a museum (use case 178) | 128 |
| 7.16 | Public sector | 129 |
| 7.16.1 | AI ideally matches children to daycare centres (use case 7) | 129 |
| 7.16.2 | Open spatial data set for developing AI algorithms based on remote sensing (satellite, drone, aerial imagery) data (use case 122) | 131 |
| 7.16.3 | Smart city (use case 165) | 133 |
| 7.16.4 | AI tool for species categorization for wildlife population monitoring (use case 177) | 135 |
| 7.17 | Security | 137 |
| 7.17.1 | Non-intrusive detection of malware (use case 93) | 137 |
| 7.17.2 | Detect pickpockets in a crowd - training with privacy-sensitive data (use case 181) | 138 |
| 7.18 | Transportation | 140 |
| 7.18.1 | Enhancing traffic management efficiency and infraction detection accuracy with AI technologies (use case 29) | 140 |
| 7.18.2 | AI system for traffic signal optimization based on multi-source data fusion (use case 49) | 142 |
| 7.18.3 | Dynamic routing software as a service (SaaS) based on artificial intelligence (use case 92) | 144 |
| 7.18.4 | Misbehaviour detection (MBD) for V2X (use case 182) | 145 |
| 7.18.5 | AI system to estimate or predict congestion length for traffic signal control (use case 183) | 147 |
| 7.18.6 | Traffic signal control using artificial intelligence (use case 184) | 148 |
| 7.18.7 | AI system for predicting rivers’ water levels during flooding (use case 186) | 149 |
| 7.19 | Work and life | 152 |
| 7.19.1 | Recommendation algorithm for improving member experience and discoverability of resorts in the booking portal of a hotel chain (use case 28) | 152 |
| 7.19.2 | Improving the quality of online interaction (use case 88) | 153 |
| 7.19.3 | Business use of IoT for surveillance (use case 162) | 155 |
| 7.19.4 | Video surveillance (use case 180) | 157 |
| | Annex A (informative) Use case template | 159 |
| | Annex B (informative) Use cases list of ISO/IEC TR 24030:2021 and ISO/IEC TR 24030:— | 162 |
| | Bibliography | 168 |