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**