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 - 7.13.13.4 Challenges and issues
 - 7.13.13.5 Societal concerns
- 7.13.14 Order-controlled production (use case 47)
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 - 7.13.14.3 Narrative (short description)
 - 7.13.14.4 Challenges and issues
 - 7.13.14.5 Societal concerns
- 7.13.15 Value-based service (use case 48)
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 - 7.13.15.2 Objective
 - 7.13.15.3 Narrative (short description)
 - 7.13.15.4 Challenges and issues
 - 7.13.15.5 Societal concerns
- 7.13.16 Improvement of productivity of semiconductor manufacturing (use case 82)
 - 7.13.16.1 Scope of use case
 - 7.13.16.2 Objective
 - 7.13.16.3 Narrative (short description)
 - 7.13.16.4 Challenges and issues
 - 7.13.16.5 Societal concerns
- 7.13.17 AI decryption of magnetograms (use case 104)
 - 7.13.17.1 Scope of use case
 - 7.13.17.2 Objective
 - 7.13.17.3 Narrative (short description)
 - 7.13.17.4 Challenges and issues
 - 7.13.17.5 Societal concerns
- 7.13.18 Analysing and predicting acid treatment effectiveness on bottom hole zone (use case 110)
 - 7.13.18.1 Scope of use case
 - 7.13.18.2 Objective
 - 7.13.18.3 Narrative (short description)
 - 7.13.18.4 Challenges and issues
 - 7.13.18.5 Societal concerns
- 7.13.19 Automatic classification tool for full size core (use case 112)
 - 7.13.19.1 Scope of use case
 - 7.13.19.2 Objective
 - 7.13.19.3 Narrative (short description)
 - 7.13.19.4 Challenges and issues
 - 7.13.19.5 Societal concerns
- 7.13.20 Intelligent technology to control manual operations via video — “Norma” (use case 118)
 - 7.13.20.1 Scope of use case
 - 7.13.20.2 Objective
 - 7.13.20.3 Narrative (short description)
 - 7.13.20.4 Challenges and issues
 - 7.13.20.5 Societal concerns
- 7.13.21 Optimization of ferroalloy consumption for a steel production company (use case 123)
 - 7.13.21.1 Scope of use case
 - 7.13.21.2 Objective
 - 7.13.21.3 Narrative (short description)
 - 7.13.21.4 Challenges and issues
 - 7.13.21.5 Societal concerns

- 7.13.22 Device control using AI consisting of cloud computing and embedded system (use case 132)
 - 7.13.22.1 Scope of use case
 - 7.13.22.2 Objective
 - 7.13.22.3 Narrative (short description)
 - 7.13.22.4 Challenges and issues
 - 7.13.22.5 Societal concerns
- 7.14 Media and entertainment
 - 7.14.1 Predictive analytics for the behaviour and psycho-emotional conditions of eSports players using heterogeneous data and artificial intelligence (use case 125)
 - 7.14.1.1 Scope of use case
 - 7.14.1.2 Objective
 - 7.14.1.3 Narrative (short description)
 - 7.14.1.4 Challenges and issues
 - 7.14.1.5 Societal concerns
- 7.15 Mobility
 - 7.15.1 Autonomous apron truck (use case 12)
 - 7.15.1.1 Scope of use case
 - 7.15.1.2 Objective
 - 7.15.1.3 Narrative (short description)
 - 7.15.1.4 Challenges and issues
 - 7.15.1.5 Societal concerns
 - 7.15.2 AI solution to help mobile phones to have better picture effect (use case 32)
 - 7.15.2.1 Scope of use case
 - 7.15.2.2 Objective
 - 7.15.2.3 Narrative (short description)
 - 7.15.2.4 Challenges and issues
 - 7.15.2.5 Societal concerns
- 7.16 Public sector
 - 7.16.1 AI ideally matches children to day-care centres (use case 7)
 - 7.16.1.1 Scope of use case
 - 7.16.1.2 Objective
 - 7.16.1.3 Narrative (short description)
 - 7.16.1.4 Challenges and issues
 - 7.16.1.5 Societal concerns
 - 7.16.2 AI sign language interpretation system for people with hearing impairment (use case 62)
 - 7.16.2.1 Scope of use case
 - 7.16.2.2 Objective
 - 7.16.2.3 Narrative (short description)
 - 7.16.2.4 Challenges and issues
 - 7.16.2.5 Societal concerns
 - 7.16.3 AI situation explanation service for people with visual impairments (use case 64)
 - 7.16.3.1 Scope of use case
 - 7.16.3.2 Objective
 - 7.16.3.3 Narrative (short description)
 - 7.16.3.4 Challenges and issues
 - 7.16.3.5 Societal concerns
 - 7.16.4 Predictive maintenance of public housing lifts (use case 94)
 - 7.16.4.1 Scope of use case
 - 7.16.4.2 Objective
 - 7.16.4.3 Narrative (short description)
 - 7.16.4.4 Challenges and issues
 - 7.16.4.5 Societal concerns
- 7.17 Retail
 - 7.17.1 Emotion-sensitive AI customer service (use case 42)
 - 7.17.1.1 Scope of use case
 - 7.17.1.2 Objective
 - 7.17.1.3 Narrative (short description)
 - 7.17.1.4 Challenges and issues
 - 7.17.1.5 Societal concerns
 - 7.17.2 Deep learning-based user intent recognition (use case 43)
 - 7.17.2.1 Scope of use case
 - 7.17.2.2 Objective

- 7.17.2.3 Narrative (short description)
- 7.17.2.4 Challenges and issues
- 7.17.2.5 Societal concerns
- 7.18 Security
- 7.18.1 Behavioural and sentiment analytics (use case 14)
- 7.18.1.1 Scope of use case
- 7.18.1.2 Objective
- 7.18.1.3 Narrative (short description)
- 7.18.1.4 Challenges and issues
- 7.18.1.5 Societal concerns
- 7.18.2 AI (swarm intelligence) solution for attack detection in IoT environment (use case 22)
- 7.18.2.1 Scope of use case
- 7.18.2.2 Objective
- 7.18.2.3 Narrative (short description)
- 7.18.2.4 Challenges and issues
- 7.18.2.5 Societal concerns
- 7.18.3 Use of robotic solution for traffic policing and control (use case 25)
- 7.18.3.1 Scope of use case
- 7.18.3.2 Objective
- 7.18.3.3 Narrative (short description)
- 7.18.3.4 Challenges and issues
- 7.18.3.5 Societal concerns
- 7.18.4 Robotic solution for replacing human labour in hazardous conditions (use case 26)
- 7.18.4.1 Scope of use case
- 7.18.4.2 Objective
- 7.18.4.3 Narrative (short description)
- 7.18.4.4 Challenges and issues
- 7.18.4.5 Societal concerns
- 7.18.5 Non-intrusive detection of malware (use case 93)
- 7.18.5.1 Scope of use case
- 7.18.5.2 Objective
- 7.18.5.3 Narrative (short description)
- 7.18.5.4 Challenges and issues
- 7.18.5.5 Societal concerns
- 7.19 Social infrastructure
- 7.19.1 Deep learning technology combined with topological data analysis successfully estimates degree of internal damage to bridge infrastructure (use case 8)
- 7.19.1.1 Scope of use case
- 7.19.1.2 Objective
- 7.19.1.3 Narrative (short description)
- 7.19.1.4 Challenges and issues
- 7.19.1.5 Societal concerns
- 7.19.2 Water crystal mapping (use case 77)
- 7.19.2.1 Scope of use case
- 7.19.2.2 Objective
- 7.19.2.3 Narrative (short description)
- 7.19.2.4 Challenges and issues
- 7.19.2.5 Societal concerns
- 7.19.3 System for real-time earthquake simulation with data assimilation (use case 97)
- 7.19.3.1 Scope of use case
- 7.19.3.2 Objective
- 7.19.3.3 Narrative (short description)
- 7.19.3.4 Challenges and issues
- 7.19.3.5 Societal concerns
- 7.20 Transportation
- 7.20.1 AI components for vehicle platooning on public roads (use case 9)
- 7.20.1.1 Scope of use case
- 7.20.1.2 Objective
- 7.20.1.3 Narrative (short description)
- 7.20.1.4 Challenges and issues
- 7.20.1.5 Societal concerns
- 7.20.2 Self-driving aircraft towing vehicle (use case 10)
- 7.20.2.1 Scope of use case
- 7.20.2.2 Objective

- 7.20.2.3 Narrative (short description)
- 7.20.2.4 Challenges and issues
- 7.20.2.5 Societal concerns
- 7.20.3 Unstaffed protective vehicle for road works on motorways (use case 11)
- 7.20.3.1 Scope of use case
- 7.20.3.2 Objective
- 7.20.3.3 Narrative (short description)
- 7.20.3.4 Challenges and issues
- 7.20.3.5 Societal concerns
- 7.20.4 Enhancing traffic management efficiency and infraction detection accuracy with AI technologies (use case 29)
- 7.20.4.1 Scope of use case
- 7.20.4.2 Objective
- 7.20.4.3 Narrative (short description)
- 7.20.4.4 Challenges and issues
- 7.20.4.5 Societal concerns
- 7.20.5 AI solution for traffic signal optimization based on multi-source data fusion (use case 49)
- 7.20.5.1 Scope of use case
- 7.20.5.2 Objective
- 7.20.5.3 Narrative (short description)
- 7.20.5.4 Challenges and issues
- 7.20.5.5 Societal concerns
- 7.20.6 Automated travel pattern recognition using mobile network data for applications to mobility as a service (use case 52)
- 7.20.6.1 Scope of use case
- 7.20.6.2 Objective
- 7.20.6.3 Narrative (short description)
- 7.20.6.4 Challenges and issues
- 7.20.6.5 Societal concerns
- 7.20.7 Autonomous trains [unattended train operation (UTO)] (use case 113)
- 7.20.7.1 Scope of use case
- 7.20.7.2 Objective
- 7.20.7.3 Narrative (short description)
- 7.20.7.4 Challenges and issues
- 7.20.7.5 Societal concerns
- 7.21 Work and life
- 7.21.1 Robotic prehension of objects (use case 16)
- 7.21.1.1 Scope of use case
- 7.21.1.2 Objective
- 7.21.1.3 Narrative (short description)
- 7.21.1.4 Challenges and issues
- 7.21.1.5 Societal concerns
- 7.21.2 Robotic vision – scene awareness (use case 17)
- 7.21.2.1 Scope of use case
- 7.21.2.2 Objective
- 7.21.2.3 Narrative (short description)
- 7.21.2.4 Challenges and issues
- 7.21.2.5 Societal concerns
- 7.21.3 Recommendation algorithm for improving member experience and discoverability of resorts in the booking portal of a hotel chain (use case 28)
- 7.21.3.1 Scope of use case
- 7.21.3.2 Objective
- 7.21.3.3 Narrative (short description)
- 7.21.3.4 Challenges and issues
- 7.21.3.5 Societal concerns
- 7.21.4 Cooking recipes without border (CRWB) recommendation benchmark (use case 75)
- 7.21.4.1 Scope of use case
- 7.21.4.2 Objective
- 7.21.4.3 Narrative (short description)
- 7.21.4.4 Challenges and issues
- 7.21.4.5 Societal concerns
- 7.21.5 Improving the quality of online interaction (use case 88)
- 7.21.5.1 Scope of use case

- 7.21.5.2 Objective
- 7.21.5.3 Narrative (short description)
- 7.21.5.4 Challenges and issues
- 7.21.5.5 Societal concerns
- 7.22 Others
- 7.22.1 AI solution to automatically identify false positives from a specific check for “untranslated target segments” by an automated quality assurance tool (use case 13)
 - 7.22.1.1 Scope of use case
 - 7.22.1.2 Objective
 - 7.22.1.3 Narrative (short description)
 - 7.22.1.4 Challenges and issues
 - 7.22.1.5 Societal concerns
- 7.22.2 AI solution for car damage classification (use case 18)
 - 7.22.2.1 Scope of use case
 - 7.22.2.2 Objective
 - 7.22.2.3 Narrative (short description)
 - 7.22.2.4 Challenges and issues
 - 7.22.2.5 Societal concerns
- 7.22.3 Causality-based thermal prediction for data centre (use case 35)
 - 7.22.3.1 Scope of use case
 - 7.22.3.2 Objective
 - 7.22.3.3 Narrative (short description)
 - 7.22.3.4 Challenges and issues
 - 7.22.3.5 Societal concerns
- 7.22.4 Machine learning tools in support of transformer diagnostics (use case 51)
 - 7.22.4.1 Scope of use case
 - 7.22.4.2 Objective
 - 7.22.4.3 Narrative (short description)
 - 7.22.4.4 Challenges and issues
 - 7.22.4.5 Societal concerns
- 7.22.5 Video on demand publishing intelligence platform (use case 58)
 - 7.22.5.1 Scope of use case
 - 7.22.5.2 Objective
 - 7.22.5.3 Narrative (short description)
 - 7.22.5.4 Challenges and issues
 - 7.22.5.5 Societal concerns
- 7.22.6 Predictive testing (use case 59)
 - 7.22.6.1 Scope of use case
 - 7.22.6.2 Objective
 - 7.22.6.3 Narrative (short description)
 - 7.22.6.4 Challenges and issues
 - 7.22.6.5 Societal concerns
- 7.22.7 Predictive data quality (use case 60)
 - 7.22.7.1 Scope of use case
 - 7.22.7.2 Objective
 - 7.22.7.3 Narrative (short description)
 - 7.22.7.4 Challenges and issues
 - 7.22.7.5 Societal concerns
- 7.22.8 Expansion of AI training dataset and contents using artificial intelligence techniques (use case 66)
 - 7.22.8.1 Scope of use case
 - 7.22.8.2 Objective
 - 7.22.8.3 Narrative (short description)
 - 7.22.8.4 Challenges and issues
 - 7.22.8.5 Societal concerns
- 7.22.9 Open spatial dataset for developing AI algorithms based on remote sensing (satellite, drone, aerial imagery) data (use case 122)
 - 7.22.9.1 Scope of use case
 - 7.22.9.2 Objective
 - 7.22.9.3 Narrative (short description)
 - 7.22.9.4 Challenges and issues
 - 7.22.9.5 Societal concerns

Annex A (informative) Impact analysis items

Annex B (informative) Use case template

Annex C (informative) In-depth analysis of machine learning tools in support of transformer diagnostics use case

- C.1 General**
- C.2 Approach to use case analysis**
- C.3 Use case analysis result**

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