13×13 Challenge Topics

English translation for reference. Please consult the Turkish original for the source wording.

1. Disaster-Resilient Cities and Emergency Management

Problem: In earthquakes, floods, fires and similar disasters, failure to identify risks in time disrupts early warning, evacuation, communication and response.

Project Question: What solution could strengthen preparedness before a disaster, enable a fast and coordinated response during it, and ease recovery afterward?

Priority Areas:

- Disaster risk detection and mapping;
- Early warning and uninterrupted communications;
- Safe evacuation and assembly-point management;
- Search and rescue and volunteer coordination;
- Aid, shelter and basic-needs management;
- Accessible solutions for vulnerable groups;
- Post-disaster damage and needs assessment; and
- Disaster education and public awareness.

Expected Output: A working prototype, mobile or web application, sensor system, AI-supported analytics model, coordination platform, physical product or feasible service model.

Pilot/PoC: Test the solution on a limited scale in a selected building, neighborhood, institution or high-risk area and demonstrate measurable results for speed, reliability, accessibility and its contribution to disaster management.

2. Smart Mobility, Accessibility and Urban Order

Problem: Traffic congestion, unregulated parking, gaps in public-transport connections and accessibility barriers make urban mobility more difficult.

Project Question: How can urban mobility become more accessible, orderly and sustainable for everyone while reducing travel times and improving safety?

Priority Areas:

- Smart traffic and intersection management;
- Parking detection and guidance;
- Public-transport planning;
- Pedestrian and bicycle safety;
- Accessible transportation solutions;
- Traffic management around schools and hospitals; and
- Environmentally friendly and shared mobility.

Expected Output: A mobile application, sensor system, data analytics model, smart navigation solution, physical prototype, urban design or service model.

Pilot/PoC: Test the solution on a selected route, at an intersection, on a public-transport line or in a public space, and demonstrate its effect on travel time, safety and accessibility.

3. Climate Adaptation and Environmental Sustainability

Problem: Extreme heat, floods, drought, air and noise pollution, and loss of green space reduce quality of life and cities' resilience to climate change.

Project Question: What solution could reduce the environmental, economic and social effects of climate change, protect nature and make living environments more resilient?

Priority Areas:

- Measurement and mapping of climate risks;
- Reduction of carbon emissions;
- Monitoring air and noise quality;
- Mitigation of the urban heat-island effect;
- Protection and expansion of green spaces;
- Adaptation to floods, drought and extreme heat; and
- Climate awareness and behavior change.

Expected Output: An environmental monitoring system, sensor network, data platform, climate-adaptation model, nature-based application or measurable service solution.

Pilot/PoC: Apply the solution in a designated environmental-risk area and measure its effects on temperature, air quality, carbon emissions, green space or climate resilience.

4. Future Experiences in Culture, Arts and Tourism

Problem: Limited visibility of cultural heritage, local arts and tourism assets, together with difficulties accessing cultural events, discovering attractions and navigating the visitor experience, hamper the realization of cities' cultural and tourism potential.

Project Question: How could an innovative solution make cultural heritage and artistic production more visible, strengthen local identity and offer accessible and sustainable experiences?

Priority Areas:

- Preservation and digital promotion of cultural heritage;
- Interactive experiences in museums, archaeological sites and historic places;
- Augmented reality, virtual reality and digital guides;
- Access to and participation in cultural and arts events;
- Support for local artists, craftspeople and creative production;
- Accessible and inclusive tourism practices;
- Sustainable tourism and smart visitor guidance; and
- Discovery of local culture, gastronomy and alternative tourism routes.

Expected Output: A mobile or web application, digital cultural route, interactive guide, augmented- or virtual-reality prototype, events platform, experience design or sustainable-tourism service model.

Pilot/PoC: Test the solution in a selected museum, historic area, cultural event or tourism route, and demonstrate measurable contributions to visitor satisfaction, participation, accessibility, cultural visibility or experience quality.

5. Recycling and Waste Management

Problem: Failure to sort waste at source, inefficient collection and failure to return reusable materials to the economy cause environmental and economic losses.

Project Question: What system could reduce waste generation, make sorting easier and turn waste into a reusable resource?

Priority Areas:

- Sorting at source;
- Smart waste collection systems;
- Recovery of food and organic waste;
- Electronic and hazardous-waste management;
- Recovery of textile and packaging waste;
- Reuse and repair models; and
- Waste tracking and resident incentive systems.

Expected Output: A smart waste bin, collection and routing system, recycled product, digital tracking platform, incentive model or circular-economy application.

Pilot/PoC: Trial the solution in a residence, school, business, institution or public space, and measure the quantity of waste sorted, reduced or recovered.

6. Sustainable Food Systems and Smart Agriculture

Problem: Food waste, production losses, difficulty accessing healthy food and inefficient use of agricultural resources threaten the sustainability of food systems.

Project Question: What solution could make the path from food production to the consumer safer, more efficient, traceable and sustainable?

Priority Areas:

- Smart and precision agriculture;
- Savings in water, energy and fertilizer;
- Food safety and traceability;
- Prevention of food loss and waste;
- Urban and vertical farming;
- Connecting producers with consumers; and
- Early detection of agricultural diseases.

Expected Output: An agricultural sensor, automation system, traceability platform, production model, physical prototype or service solution that reduces food waste.

Pilot/PoC: Test the solution at a designated production, sales or consumption point and demonstrate efficiency, resource savings, product quality or food loss prevented.

7. Health, Sports and Well-Being

Problem: Sedentary lifestyles, unhealthy diets, mental-health problems and unequal access to preventive health services reduce quality of life.

Project Question: What solution could support physical, mental and social well-being and strengthen healthy-living habits?

Priority Areas:

- Preventive health and early awareness;
- Mental health and psychosocial support;
- Increased sports and physical activity;
- Healthy eating habits;
- Support for older adults and people with disabilities;
- Monitoring chronic diseases; and
- Health literacy.

Expected Output: A mobile application, wearable technology, health-monitoring system, physical product, awareness program or accessible service model.

Pilot/PoC: Test the solution with a designated user group and measure its contribution to physical activity, health awareness, access to services or quality of life.

8. Water Management, Energy Efficiency and Renewable Energy

Problem: Insufficient monitoring of water and energy use, late detection of losses and leaks, and limited use of renewables lead to unnecessary consumption of natural resources.

Project Question: What solution could reduce water and energy consumption, detect losses early and expand renewable-energy use?

Priority Areas:

- Monitoring water and energy consumption;
- Early detection of losses and leaks;
- Smart buildings and lighting systems;
- Rainwater and greywater use;
- Solar, wind and alternative-energy systems;
- Energy storage solutions; and
- User applications that encourage saving.

Expected Output: A smart meter, sensor, energy-management system, renewable-energy prototype, data platform or savings model.

Pilot/PoC: Test the solution in a building, facility, production site or outdoor area and demonstrate water and energy savings with measurable data.

9. Education, Youth, Skills Development and Employment

Problem: Gaps between skills acquired in education and the needs of the working world hinder young people's access to quality education, experience, career and employment opportunities.

Project Question: What solution could help young people discover their abilities, develop current skills and move from education into employment?

Priority Areas:

- Equal opportunity in education;
- Digital and vocational skills;
- Personalized learning;
- Career and talent guidance;

- Internships and first-job opportunities;
- Youth entrepreneurship; and
- Collaboration between education and industry.

Expected Output: A learning platform, skills-analysis system, digital content, matching application, training program or employment model.

Pilot/PoC: Apply the solution with a designated group of students, young people or job seekers and measure skills development, participation, access to employment or learning outcomes.

10. Science, Advanced Technologies and Space Applications

Problem: Scientific work and advanced technologies are only being translated into tangible products, services and practical solutions for daily life to a limited extent.

Project Question: How could scientific knowledge and advanced technologies be used to develop an innovative and feasible solution to a social, environmental or industrial problem?

Priority Areas:

- Robotics and autonomous systems;
- Use of satellite and space data;
- Advanced materials and manufacturing technologies;
- Biotechnology and nanotechnology;
- Sensors and Internet of Things systems;
- Unmanned vehicles; and
- Commercialization of scientific research.

Expected Output: A working technological prototype, experimental setup, software, advanced material, autonomous system, satellite-data application or commercially viable product model.

Pilot/PoC: Test the solution in a controlled or real-use environment and validate its technical operation, reliability and benefits.

11. Social Innovation and Community Life

Problem: Loneliness, social exclusion, inequality of opportunity and weakening community solidarity prevent different groups from participating equally and actively in social life.

Project Question: What social solution could strengthen solidarity, reduce inequalities of opportunity and create inclusive living environments?

Priority Areas:

- Support for disadvantaged groups;
- Aging and social isolation;
- Empowerment of women, children and people with disabilities;
- Neighborhood solidarity and volunteering;
- Access to culture and arts;
- Intergenerational communication; and
- Inclusive public spaces.

Expected Output: A social-enterprise model, digital solidarity platform, community program, accessible service, physical-space solution or project with measurable social impact.

Pilot/PoC: Implement the solution with a designated community or target group and demonstrate its social impact on participation, access, solidarity and quality of life.

12. Digital Transformation, AI and Cybersecurity

Problem: Ineffective use of data, incompatibility between digital systems, difficulties accessing services and growing cyber threats slow digital transformation.

Project Question: How could AI and digital technologies make services faster, safer, more accessible and more efficient?

Priority Areas:

- AI-supported decision systems;
- Big data and predictive analytics;
- Process automation;
- Smart and accessible digital services;
- Prevention of cyberattacks and fraud;
- Protection of personal data; and
- Trustworthy and ethical AI.

Expected Output: A software prototype, AI model, data analytics platform, cybersecurity product, automation system or digital-service solution.

Pilot/PoC: Test the solution with sample or anonymized data and demonstrate results for accuracy, speed, security, usability and efficiency.

13. Financial Technologies and Innovative Economy

Problem: Difficulties with access to secure financial services, budgeting and savings, payment processes and financial literacy reduce the economic resilience of individuals and businesses.

Project Question: What solution could make financial transactions safer, more accessible and more efficient, and improve the economic decisions of individuals and businesses?

Priority Areas:

- Secure and accessible payment systems;
- Budget, savings and debt management;
- Financial literacy;
- Digital commerce and business solutions;
- Fraud prevention;
- Access to financing for SMEs and entrepreneurs; and
- Social and inclusive financial models.

Expected Output: A financial application, payment solution, budgeting tool, risk-analysis model, security system or innovative business model.

Pilot/PoC: Test the solution in a secure test environment with a sample user group, and verify its contribution to transaction speed, security, usability, savings or financial access.