Artificial Intelligence for Business Decisions and Transformation

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Our Real-Time Sign Language Recognition System was initially developed to support the English language only. This limitation restricts the accessibility of our solution to non-English-speaking users, reducing its inclusivity and usability. After assessing user feedback and market demand, we have identified the need to expand our system to support additional languages. This change decision, focusing on the inclusion of five additional languages: Spanish, French, German, Japanese, and Mandarin.

1. **What specific problems are we trying to solve with the redesign?**
    - Problem: Currently, our system's usability is limited to English-speaking users, which excludes a large population of sign language users worldwide.
    - Solution: By expanding support to five additional languages, we aim to create a more inclusive system that is accessible to a broader, multilingual user base.
2. **What measurable outcomes do we want to achieve?**
    - Outcomes:
        - Achieve a minimum of 85% accuracy in sign recognition for each of the new languages.
        - Increase adoption among non-English-speaking users by 30% within six months of deployment.
        - Enhance user satisfaction scores by 25% in feedback from non-English-speaking users.
3. **Who will be impacted by the change, and how can they be engaged in the design process?**
    - Impacted Parties:
        - End Users: The primary users who communicate in the five targeted languages, including the deaf and mute communities globally.
        - Development Team: Responsible for the technical adjustments required to implement multilingual recognition.
        - Accessibility Advocates: Experts in the deaf and mute communities who can provide insights and feedback.
    - Engagement Strategy:
        - Engage native sign language users for each language in testing and provide feedback sessions.
        - Conduct workshops and consultations with accessibility advocates to ensure culturally appropriate and accurate sign language interpretation.
4. **What tools, technology, or training are required?**
    - Tools and Technology:
        - Data Annotation Software: For labeling and annotating sign language data specific to each language.
        - Advanced Machine Learning Models: Capable of handling multilingual sign language recognition and supported by extensive datasets for each language.
        - User Interface Enhancements: Updates to enable language selection and display relevant feedback in the selected language.

- Training:
    - Training the development and testing teams on handling diverse sign language datasets.
    - Familiarizing support teams with the new languages to assist users effectively.

5. **Are there any regulatory or compliance considerations?**
    - Compliance:
        - Ensure adherence to accessibility standards, such as WCAG (Web Content Accessibility Guidelines), to provide a universally accessible solution.
        - Privacy and data management protocols for language data collection and usage, in compliance with local and international data protection regulations (e.g., GDPR).
6. **What are the main risks, and how can they be mitigated?**
    - Risk 1: Data Collection Limitations
        - Description: Access to reliable datasets for each language could be challenging.
        - Mitigation: Collaborate with linguistic and accessibility organizations and use crowdsourcing platforms to acquire accurate data.
    - Risk 2: Cultural Variability in Sign Language
        - Description: Regional dialects and variations may affect accuracy.
        - Mitigation: Collect diverse data samples to represent dialectal differences and prioritize widely accepted standard signs.
    - Risk 3: Increased Development Costs
        - Description: Expanding language support requires additional resources and infrastructure.
        - Mitigation: Conduct a phased rollout starting with high-demand languages and apply for accessibility-focused grants to offset costs.
    - Risk 4: Complexity in Model Training and Maintenance
        - Description: Integrating multiple languages may introduce model complexities.
        - Mitigation: Employ a modular approach where each language is a separate model component, allowing ease of maintenance and updates.