Plan Overview

A Data Management Plan created using DMPonline

Title: Developing a Family Care-Funding Decision-Support Tool: Hong Kong/GBA Scenarios

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Template: DCC Template

Project abstract:

This research proposes the development and evaluation of a Python-based decision-support prototype designed to assist Hong Kong older adults and their families in planning basic residential-care funding across Hong Kong and the Greater Bay Area (GBA). The tool addresses the challenge of assessing whether available capital and contributions can sustain care costs over five- and ten-year horizons under varying historical stock-return scenarios. Utilizing a Design Science Research methodology, the project combines documentary analysis of existing financial tools with joint qualitative interviews involving approximately ten older adult-family pairs. Following rigorous researcher testing, the prototype will undergo online screen-only demonstrations to evaluate user comprehension, perceived usefulness, and preliminary service feasibility. Key deliverables include a requirements matrix, a bounded technical prototype, user evaluation insights, and a service-feasibility summary providing proceed/revise/stop recommendations. The study emphasizes transparent, non-advisory financial illustrations and strict ethical data management, aiming to determine if a care-specific funding tool adds value beyond existing generic retirement calculators.

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Developing a Family Care-Funding Decision-Support Tool: Hong Kong/GBA Scenarios

Data Collection

What data will you collect or create?

Primary data to be collected:

1. **Qualitative interview data** from approximately ten pairs of older adults (aged 60+) and their adult family members involved in care funding/planning. Data will be collected through:
   - Joint discussions exploring care-funding knowledge, current practices, difficulties, and information sources
   - Online screen-only demonstrations of the prototype, followed by feedback on comprehension, usefulness, concerns, and adoption conditions
   - Handwritten Cantonese notes (no audio/video recording), later translated into checked English summaries
2. **Documentary/secondary data** including:
   - Official government care-support information and the HKSAR Legislative Council reply on the Residential Care Services Scheme in Guangdong (GDRCS)
   - Existing financial tools (e.g., IFEC retirement calculators) for functional comparison
   - Documented care fee quotations from Hong Kong and GBA facilities (basic fees, inclusions, exclusions, currencies)
   - Historical stock-return data for high/medium/low profile scenarios

How will the data be collected or created?

Data Collection Methods:

1. **Documentary Research**: Systematic review of official care-support information, the HKSAR Legislative Council reply on GDRCS (March 2026), existing financial tools (IFEC calculators), and investment-method literature. A dated register will track current eligibility, quotations, inclusions, currencies, and uncertainties.
2. **Joint Qualitative Interviews**: Approximately ten pairs of older adults (aged 60+) and their adult family members will be purposively recruited after ethics approval. Data collection occurs in two stages:
   - **First joint discussion**: Pairs review questions together, discussing their understanding of basic fees, information sources, Hong Kong-GBA living arrangements, price ranges, and funding approaches for prolonged care stays.
   - **Second joint review**: After prototype development, pairs participate in an online screen-only demonstration where the researcher operates the tool with fictional scenarios. Participants provide feedback on comprehension, usefulness, concerns, and adoption conditions.
3. **Note-taking**: The researcher takes handwritten Cantonese notes during sessions (no audio/video recording), then prepares checked English summaries. Names are replaced with codes. Main points are repeated during discussion for verification.

Documentation and Metadata

What documentation and metadata will accompany the data?

1. Interview and Qualitative Data Documentation:

- **Raw Data:** Handwritten notes taken in Cantonese during joint discussions and online demonstrations.
- **Processed Data:** Checked English summaries derived from the Cantonese notes. These are not word-for-word transcripts.
- **Anonymization Metadata:** A coding system where participant names are replaced with unique codes to ensure anonymity. Identifying combinations of details will be removed from reporting.
- **Administrative Records:** Separate contact records and individual written consent forms (or documented oral consent records) for each participant. These are stored separately from the interview data.
- **Contextual Metadata:** Dates of sessions, participant demographics (older adults aged 60+ and adult family members), and notes on technical difficulties (e.g., screen visibility issues) versus conceptual confusion.

2. Documentary and Secondary Data Documentation:

- **Source Register:** A dated register tracking current eligibility, care fee quotations, inclusions/exclusions, currencies, and uncertainties.
- **Source Metadata:** Full citations and access dates for all reviewed materials, including the HKSAR Legislative Council reply (March 2026), IFEC retirement calculators (2019, 2021), and CFA Institute literature (2026).
- **Distinction Log:** Documentation distinguishing actual verified quotations from fictional demonstration figures used in the

prototype.

3. Prototype and Technical Documentation:

- **Parameter Register:** Detailed specifications of the stock universe, common period, return measures, cut-offs, and complete quarterly paths used for high/medium/low historical profiles.
- **Test Log:** Records of researcher testing, including known-result cases, reference calculations, expected vs. actual results, and verification of forward/reverse agreement.
- **Requirements Matrix:** Documentation linking user needs (from RQ1/RQ2) to technical specifications (RQ3).
- **Version Control & Change Log:** Records of bug fixes, version updates, and a log of participant suggestions (categorized as implemented or deferred).

4. Analysis and Feasibility Documentation:

- **Thematic Analysis Log:** A simple log tracking participant statements, researcher interpretations, and resulting prototype changes, guided by Braun and Clarke (2006).
- **Feasibility Assessment:** Documentation of the "proceed/revise/stop" recommendations based on calculation tests, user understanding, and practical limitations.

5. Storage and Retention Metadata:

- **Storage Location:** Electronic data will be held in institutionally approved, password-protected encrypted storage.
- **Retention Schedule:** Metadata indicating that paper notes will be securely destroyed within thirty days post-interview (after English consolidation checks), while electronic data follows institutional retention requirements.
- **Withdrawal Window:** Documentation of the 14-day withdrawal window for participants.

Ethics and Legal Compliance

How will you manage any ethical issues?

1. Approval and Consent: Formal recruitment and all sessions will proceed only after written university approval. Each participant (the older adult and the family member) will provide individual consent (written or documented oral) after receiving accessible Chinese information and a Cantonese explanation. Neither person consents for the other. Participation is strictly voluntary; participants may decline, skip questions, pause, or stop at any time without disadvantage. Individuals unable to consent independently are excluded from this protocol. **2. Confidentiality and Well-being:** Because discussions are joint, confidentiality within the pair cannot be guaranteed. The researcher will avoid eliciting private financial details or requiring agreement between participants. If distress or family pressure arises, the session will be paused or terminated immediately. **3. Online Safety Measures:** For online demonstrations, a privileged setting will be used. The researcher will check that both participants can follow the screen and will pause if the connection fails. No audio or video recording is planned. The researcher will avoid sharing identifying information on screen and will explain that participants should not capture sensitive discussions. **4. Data Management and Withdrawal:**

- **Storage:** Paper notes will be locked securely. Electronic consolidated information and analysis will be password-protected and held in institutionally approved encrypted storage. No personal cloud storage or external translation services will be used without approval.
- **Destruction:** Paper notes will be destroyed securely within thirty days of each interview (after checking against English consolidation).
- **Anonymity:** Identifying combinations of details will be removed from all reporting.
- **Withdrawal:** A withdrawal window of fourteen calendar days after each session permits removal of data before paper destruction. Limits after irreversible anonymization will be explained in advance.

How will you manage copyright and Intellectual Property Rights (IPR) issues?

1. Third-Party Materials and Sources:

- **Government Publications**: The HKSAR Legislative Council reply on GDRCS (March 2026) and official care-support information are public documents. These will be properly cited with full references and access dates. No reproduction of substantial portions will occur without permission.
- **Existing Financial Tools**: IFEC retirement calculators (2019, 2021) will be referenced for functional comparison only. The project will not reproduce, replicate, or distribute these tools. Screenshots or descriptions will be used solely for academic analysis with proper attribution.
- **Academic Literature**: Frameworks from Davis (1989), Peffers et al. (2007), Braun and Clarke (2006), and CFA Institute (2026) materials will be cited according to academic standards. No substantial reproduction of copyrighted text will occur.
- **Historical Stock Data**: Return data will be sourced from publicly available or institutionally licensed databases. Usage will comply with provider terms and conditions.

2. Prototype Development and Ownership:

- The Python decision-support prototype is developed by the student as original work for academic research purposes.
- The prototype code, requirements matrix, parameter register, and test log are research outputs created for this capstone project.
- No third-party proprietary code or licensed software components will be incorporated without appropriate permissions or open-source licensing compliance.

3. Research Outputs and Data:

- Interview data (Cantonese notes and English summaries) are collected by the researcher with participant consent. Participants retain rights to withdraw their data within the 14-day window.
- Anonymized findings and thematic analysis are research outputs owned by the researcher/university per institutional policies.
- No participant data will be published in identifiable form.

4. Usage Restrictions:

- The project explicitly states no commercial deployment, public release, or organizational use within this research phase.
- The prototype is for academic demonstration and evaluation only.
- Any future commercial development would require separate IPR agreements and permissions.

5. Institutional Compliance:

- All work follows university research ethics and IPR policies.
- Proper attribution is maintained throughout to avoid plagiarism or copyright infringement.
- The project distinguishes between inspected functions of existing tools and original prototype development.

Storage and Backup

How will the data be stored and backed up during the research?

1. Physical Data Storage:

- Paper interview notes (handwritten in Cantonese) will be locked securely in a controlled location accessible only to the researcher.
- Paper notes will be destroyed securely within thirty days of each interview, subject to ethics approval, after checking against the English consolidation.

2. Electronic Data Storage:

- Electronic consolidated information, analysis, prototype code, test logs, and parameter registers will be password-protected and held in institutionally approved encrypted storage with controlled access.
- The ethics application will specify retention periods, backup arrangements, and final deletion procedures.
- Regular backups will be maintained within the institutional storage environment to prevent data loss.

3. Data Separation:

- Contact records and individual consent forms will be stored separately from interview data and analysis.
- Contact and consent records will follow institutional retention requirements and will not be automatically destroyed with interview notes.
- Identifying combinations of details will be removed from all reporting to maintain anonymity.

4. Storage Restrictions:

- Personal cloud storage services (e.g., personal Google Drive, Dropbox, iCloud) will not be used without explicit institutional approval.
- External translation services will not be used without approval to protect data confidentiality.
- No data will be stored on unencrypted portable devices or shared via unsecured channels.

5. Access Control:

- Access to all data will be restricted to the researcher and authorized supervisors only.
- Password protection and encryption will be maintained throughout the research period and until final deletion per institutional retention schedules.

How will you manage access and security?

1. Physical Security:

- Paper interview notes (handwritten in Cantonese) will be locked securely in a controlled location accessible only to the researcher.
- Paper notes will be destroyed securely within thirty days of each interview (after checking against English consolidation), subject to ethics approval.

2. Electronic Security:

- Electronic consolidated information, analysis, prototype code, test logs, and parameter registers will be password-protected and held in institutionally approved encrypted storage with controlled access.
- Access will be restricted to the researcher and authorized supervisors only.
- Personal cloud storage services (e.g., personal Google Drive, Dropbox, iCloud) will not be used without explicit institutional approval.
- External translation services will not be used without approval to protect data confidentiality.

3. Data Separation:

- Contact records and individual consent forms will be stored separately from interview data and analysis.
- Contact and consent records will follow institutional retention requirements and will not be automatically destroyed with interview notes.
- Identifying combinations of details will be removed from all reporting to maintain anonymity.

4. Access Control:

- Only the researcher and authorized supervisors will have access to the data.
- Password protection and encryption will be maintained throughout the research period and until final deletion per institutional retention schedules.
- No data will be stored on unencrypted portable devices or shared via unsecured channels.

5. Online Demonstration Security:

- Online demonstrations will use a privileged setting with institutionally approved arrangements.
- The researcher will avoid sharing identifying information on screen.
- Participants will be informed not to capture sensitive discussions.
- No audio or video recording is planned.

Selection and Preservation

Which data are of long-term value and should be retained, shared, and/or preserved?

Data for Long-Term Retention and Preservation:

1. **Anonymized Research Outputs:**
   - English consolidated summaries of interview findings (with all identifying information removed)
   - Thematic analysis results following Braun and Clarke (2006) methodology
   - Aggregated user feedback on comprehension, usefulness, adoption conditions, and service feasibility
   - Service-feasibility recommendations (proceed/revise/stop decisions)
2. **Prototype and Technical Documentation:**
   - Python prototype code with version history
   - Requirements matrix linking user needs to technical specifications
   - Parameter register documenting stock universe, historical periods, return measures, cut-offs, and quarterly paths
   - Test log showing verification results, expected vs. actual outcomes, and bug fixes
   - Change log recording participant suggestions and implementation decisions
3. **Documentary Research Records:**
   - Dated register of care fee quotations, eligibility criteria, inclusions/exclusions, and currencies
   - Functional comparison of existing tools (IFEC calculators and other reviewed alternatives)
   - Source documentation for historical stock-return profiles and investment literature
4. **Administrative Records:**
   - Contact and consent records (stored separately from interview data) following institutional retention requirements
   - Ethics approval documentation and withdrawal requests

Data NOT for Long-Term Retention:

- Paper interview notes (handwritten Cantonese notes) will be securely destroyed within thirty days of each interview after checking against English consolidation
- Identifying combinations of details will be removed from all reporting to protect participant confidentiality

Sharing Considerations:

- Only anonymized, aggregated findings will be shared in the final research report
- No personal data, raw interview notes, or identifying information will be shared
- The prototype is for academic research purposes only; no public release or organizational deployment is planned within this project

What is the long-term preservation plan for the dataset?

1. Differential Retention Schedule:

- **Paper interview notes** (handwritten Cantonese notes): Will be securely destroyed within thirty days of each interview, subject to ethics approval, after checking against English consolidation. These raw notes have no long-term preservation value.
- **Contact and consent records**: Will be retained separately from interview data according to institutional retention requirements. These administrative records are not automatically destroyed with interview notes.
- **Electronic consolidated information and analysis**: Will be held in institutionally approved encrypted storage with password protection and controlled access. The specific retention period and final deletion date will be specified in the ethics application.

2. Data for Long-Term Preservation: The following anonymized research outputs have long-term value and will be preserved:

- Anonymized English consolidated summaries (with all identifying information removed)
- Thematic analysis results and aggregated findings
- Prototype code, requirements matrix, parameter register, and test log
- Service-feasibility recommendations and research report

3. Preservation Safeguards:

- All electronic data will be maintained in institutionally approved encrypted storage with regular backups
- Personal cloud storage services will not be used without explicit approval
- Identifying combinations of details will be permanently removed from all reporting
- Access will be restricted to the researcher and authorized supervisors only

4. Final Disposition:

- The ethics application will specify the exact retention period, backup arrangements, and final deletion procedures in accordance with institutional requirements
- Upon completion of the retention period, electronic data will be securely deleted following institutional protocols
- Anonymized research findings may be preserved as part of the academic record per university policy

5. Withdrawal Considerations:

- A fourteen-day withdrawal window permits data removal before paper destruction
- Limits on withdrawal after irreversible anonymization or synthesis will be explained to participants in advance

Data Sharing

How will you share the data?

1. Internal Academic Sharing:

- The research data, including the prototype, test logs, and analysis, will be shared with the university and the project supervisor for assessment and academic review purposes as part of the MSc Capstone Project.
- Access is restricted to the researcher and authorized supervisors.

2. Anonymized Reporting:

- Findings will be shared in the final research report.
- All identifying combinations of details will be removed from reporting to ensure participant anonymity.
- The report will distinguish between inspected functions, participant views, evaluated calculations, and planning assumptions.

3. Restrictions on External Sharing:

- **No Public Release:** Independent user access, public hosting, and organizational deployment are not part of this project. The prototype will not be made publicly available.
- **No Participant Take-Home Data:** Participants receive no printed report, downloadable calculation, or take-home comparison record. The demonstration is screen-only.
- **No Commercial Sharing:** Actual sales, organizational deployment, and commercial feasibility studies are outside the scope of this project. Data will not be shared with commercial entities or service providers.

4. Data Retention:

- Research notes and test logs are retained only for approved study purposes and will be stored securely as per the data management plan, not shared externally.

Are any restrictions on data sharing required?

Yes, strict restrictions on data sharing are required due to the sensitive nature of the participants (older adults and families discussing finances) and the academic scope of the project. 1. Anonymity and Confidentiality Restrictions:

- **Identifying Data:** Identifying combinations of details will be permanently removed from all reporting.
- **Separation:** Contact and consent records are stored separately from interview data and analysis to prevent re-identification.
- **Joint Discussion Limits:** Since confidentiality within the participant pair cannot be guaranteed, the researcher will avoid eliciting private financial details that one party might not wish to share with the other.

2. Access and Distribution Restrictions:

- **Limited Access:** Access to data is restricted to the researcher and authorized supervisors only.
- **No Public Release:** There will be **no independent user access, public hosting, or organizational deployment** of the prototype or the underlying data.
- **No Commercial Sharing:** Actual sales, public release, and commercial deployment are explicitly excluded. Data will not be shared with commercial entities, service providers, or for market research purposes.

3. Participant Sharing Restrictions:

- **Screen-Only:** The demonstration is strictly screen-only. Participants receive **no printed report, downloadable calculation, or take-home comparison record**.
- **Recording Ban:** Participants are instructed not to capture (screenshot/record) sensitive discussions during the online session.

4. Technical Storage Restrictions:

- **Prohibited Tools:** Personal cloud storage services (e.g., personal Google Drive, Dropbox) and external translation services are prohibited without explicit institutional approval to prevent unauthorized sharing.

5. Withdrawal Restrictions:

- **Time Limit:** Participants have a 14-day withdrawal window to request data removal. After this period, or after irreversible anonymization/synthesis, withdrawal may no longer be possible, and this limit will be enforced and explained in advance.

Responsibilities and Resources

Who will be responsible for data management?

The student researcher (Student Number: 10969737) will be primarily responsible for all data management activities throughout the project. Specific responsibilities include:

- **Data Collection & Creation:** Taking handwritten Cantonese notes during interviews, preparing checked English summaries, and developing the prototype code and test logs.
- **Security & Storage:** Locking paper notes securely and storing electronic data (consolidated information, analysis, prototype files) in password-protected, institutionally approved encrypted storage.
- **Anonymization:** Replacing participant names with codes and removing identifying combinations from all reporting.
- **Separation of Data:** Ensuring contact records and consent forms are stored separately from interview data and analysis.
- **Destruction & Retention:** Securely destroying paper notes within thirty days of each interview (after checking against English consolidation) and managing the fourteen-day withdrawal window for participants.
- **Compliance:** Ensuring all data handling follows the approved ethics application and university policies, including not using personal cloud storage or external translation services without approval.

The project supervisor will provide oversight, but the day-to-day management, security, and ethical compliance of the data rest with the student researcher.

What resources will you require to deliver your plan?

1. Human Resources:

- **Researcher:** The student researcher (yourself) to conduct the documentary review, build the Python prototype, conduct interviews, and perform analysis.

- **Supervisor:** Academic supervision and guidance throughout the project.
- **Participants:** Approximately ten pairs of older adults (aged 60+) and their adult family members for joint discussions and online demonstrations.

2. Technical and Software Resources:

- **Development Environment:** A computer with Python installed to develop and test the decision-support prototype.
- **Data Sources:** Access to historical stock-return data (for high/medium/low profiles) and official care fee quotations/information from Hong Kong and GBA sources (e.g., HKSAR Legislative Council replies).
- **Communication Tools:** Institutionally approved online video conferencing software for conducting the screen-only demonstrations and joint discussions.
- **Analysis Tools:** Standard word processing and analysis software for thematic analysis (following Braun & Clarke, 2006).

3. Administrative and Ethical Resources:

- **Ethics Approval:** Written university approval is required before any formal recruitment or data collection begins.
- **Secure Storage:** Access to institutionally approved, password-protected encrypted storage for electronic data (consolidated notes, analysis, prototype code).
- **Physical Security:** A secure location (e.g., locked drawer/office) for storing paper interview notes prior to their destruction.

4. Time:

- The project requires approximately six months (October 2026 to March 2027) to complete literature review, ethics approval, recruitment, prototype development, user testing, and final reporting.