

**Memorandum for the Finance Committee of
the Hong Kong Housing Authority**

**Latest Development on the
Application of Information Technology**

PURPOSE

This paper provides an annual update of the use and application of information technology (IT) in the Hong Kong Housing Authority (HA)'s operations and services, including initiatives to promote digital development in the longer term.

BACKGROUND

2. Over the years, HA has been taking forward IT initiatives to meet business needs, improve operational efficiency and enhance various services to tenants and the public at large. At present, we have a total of 95 IT systems/ services in operation to support the day-to-day business of HA including business processes for public rental housing (PRH) and subsidised sale flats (SSF) schemes, development and construction, estate management, and building control processes under the Independent Checking Unit (ICU).

KEY PROJECTS AND MAJOR PROGRESS

3. A list of approved IT projects currently under implementation is in **Annex A**. The key projects and major progress are highlighted in paragraphs 4 to 17 below.

(A) Enhancing Public Services

e-Services

4. HA is committed to providing digital services for convenient public use. As of May 2024, e-submission will be available for 97 services provided by HA. Tenants and members of the public can also handle payments to HA electronically including the Faster Payment System (FPS) at their convenience. Where digital identity or digital signatures are required, “iAM Smart” is adopted for the e-submission. A list of e-submission services is set out in **Annex B**.

5. FPS will be made available as an additional payment option at some 400 shroff offices in PRH estates, carpark, shopping centres and HA headquarters by September 2024.

6. We continue to enrich functions provided by HA’s iHousing mobile app, which was launched in 2017. For example, tenants can now apply monthly parking spaces using the app and a new Smart Estate Management category of services is available. In the past year, the overall download rate grew from 270 000 to 325 000 (as at April 2024). The utilisation of the services available in the iHousing app remains high with an average monthly usage rate of about 535 000 counts.

7. The Housing Smart Intake System was first launched in June 2022 to support electronic reporting of defects by PRH tenants during mass intake. The system was further extended to cover the defects reporting from owners of new SSF courts in December 2023. The one-off cost for the extension was \$3.9M.

8. We will introduce a chatbot in iHousing mobile app and HA’s website in August 2024. It serves to provide an additional communication channel to the public for handling general enquiries on basic information of HA’s business and collect residents’ suggestions in estate management such as cleaning and security services. The one-off implementation cost is \$1.9M.

(B) Improving Operating Efficiency

Revamping HA's Enterprise Resource Planning System

9. At present, HA's Enterprise Resource Planning (ERP) System supports core operations for finance, general procurement and service contracts for estate services. With approval of the Finance Committee (FC) to revamp the ERP System vide Paper No. FC 31/2023, the new system is planned for launching in December 2026, with new functions and improvements. It will also address the software end-of-support issue in December 2027. The one-off implementation cost is estimated to be \$218.5M.

Implementation of Asset Management System

10. FC approved the implementation of a new Asset Management System (AMS) vide Paper No. FC 32/2023 in December 2023. AMS will serve as a centralised platform to manage HA's physical assets at PRH estates, shopping centres, car parks, factory estates, markets and HA office buildings. The AMS is planned for launching in December 2026. The one-off implementation cost is estimated to be \$328.8M.

Supporting Biennial Declaration of PRH tenants

11. Starting from October 2023, PRH tenants and all household members are required to make declarations to HA every two years on their occupancy status and whether they own any domestic properties in Hong Kong. Some 400 000 copies of biennial declaration forms will be received each year. New functions to support form submission electronically, preliminary and detailed vetting were launched in September 2023. The one-off implementation cost was \$0.8M.

Tenancy Abuse Information System

12. To combat tenancy abuse, we have established a data matching and verification mechanism with the Land Registry since June 2023 to obtain bulk land search records by batch so that possible household concealment of property ownerships in Hong Kong can be identified within a short period of time. To cope with the influx of suspected tenancy abuse cases identified from this new mechanism and other intensified measures, a new Tenancy Abuse Information System for public housing resources management is under development to monitor the progress of tenancy abuse cases, including income and assets and occupancy related cases. The system will provide a comprehensive overview of

all tenancy abuse cases to assist in refining and enhancing strategies to combat tenancy abuse. The system is planned for launching in December 2024. The one-off implementation cost is estimated to be \$4.2M.

People Flow Analysing System

13. A new People Flow Analysing System is under development for people traffic analysis and facilitate business planning at Domain in Yau Tong, HA flagship shopping centre. The system is planned for launching in December 2024. The one-off implementation cost is estimated to be \$5.0M.

(C) IT Infrastructure Support and Centralised IT Services

Information Security

14. To protect HA's IT systems and information asset from security attack and vulnerabilities, HA follows strictly the Government's Security Regulations (SR) and IT security policies and guidelines promulgated by the Office of Government Chief Information Officer (OGCIO) from time to time. We also continuously review and strengthen HA's information security measures in place to ensure their effectiveness. New measures to combat increasing security threat are also introduced at appropriate time.

15. HA maintains ISO/IEC 27001 certification on information security management systems and ISO/IEC 27017 certification for code of practice for information security controls for cloud services. These certifications require surveillance audit by certification body every year. This helps HA maintain our IT security protection at a high standard.

16. Independent security consultants are engaged regularly to conduct security review on IT systems and related controls to ensure the conformance to SR and OGCIO's requirements. In addition, OGCIO will commence the biennial comprehensive IT security compliance audit tentatively in the second half of 2024 to assess the compliance against the Government's security requirements. In the meantime, we will keep in view cybersecurity incidents occurred from time to time (including government departments, public bodies and private companies) and seek advice and assistance from OGCIO and/or external consultants and put in place additional measures and safeguards as appropriate.

Email Services

17. HA has been using the centralised email system adopted by the Government in the past few decades. OGCIO has developed a new Centrally Managed Messaging Platform (CMMP) to replace the existing Lotus mail system. Up to now, CMMP is adopted by 24 government bureaux and offices, mostly located within the Central Government Offices premises in Tamar. Wider rollout of CMMP to government departments, including the Housing Department (HD), has been progressively arranged by OGCIO. Being one of the largest government departments with some 14 000 email accounts (including HA staff, contract staff and other functional accounts), we will therefore adopt a pragmatic approach for CMMP implementation in HA/HD. A small batch of about 300 users have started switching to CMMP, the migration process is being reviewed for devising a detailed plan on the full implementation of CMMP in HA/HD.

PROMOTING DIGITAL DEVELOPMENT

(A) Building Information Modelling (BIM) and Geographic Information System (GIS)

18. HA has started using BIM in public housing developments (PHDs) since 2005, and all construction projects have adopted BIM, which allows professionals in the construction industry to carry out planning, design and construction works in a virtual environment. We have extensively leveraged the use of BIM for spatial planning, 3D design collaboration, design optimisation, engineering analysis, statutory submission and quantity take-off to enhance our productivity. We also apply BIM in construction planning and simulation to improve constructability, increase efficiency and quality, and enhance site safety. Our implementation of integrated use of BIM with other innovative technologies, such as GIS, generative design and reality capture, serves not just as inspiration but also for scaling up for application in the industry.

19. In order to promote design automation to cope with limited human resources and large amount of flat production, HA has developed a BIM-enabled systematic foundation design system (BIM-SAFD) for 3D visualisation of complex underground geological conditions, 2D production of foundation plans and piling schedules, and statutory submission. The system achieves design and drawing production optimisation, enhances design accuracy and facilitates quantity measurement for tender documentation.

20. With a view to enhancing quality, HA has applied reality capture technology for moving towards the digitalisation of PHD since 2018. By capturing buildings and terrain to create three-dimensional digital models in BIM, the assessment of site conditions can be conducted in a faster and more accurate manner. Recently, HA has extended the use of reality capture technology to compare the as-built conditions of building interior with the construction BIM model to identify discrepancy to facilitate the final inspection process.

21. To cope with the large volume of public housing production, HA has successfully developed the “Project Information Management and Analytics Platform (HA-PIMAP). HA-PIMAP is an integrated BIM and GIS portal leveraging digital twin technology and supporting three-dimensional (3D) digital maps to form a holistic data management and analytic digital platform for all public housing projects with data generated from planning, design, construction and subsequent building maintenance stages to enhance management efficiency. In the past few years, HA has received numerous awards from different international organisations in recognising HA’s efforts in taking forward such innovative technology in driving digital development in the construction industry.

(B) Smart Estate Management

22. It is announced in the 2023 Policy Address that, to promote smart estate management, HA will select ten estates as pilot sites in 2024 for trial adoption of innovative technologies including Internet of Things (IoT) sensors and artificial intelligence. For instance, IoT sensors are installed in some PRH estates as trial for detecting water level at storm drains of lower ground carparks for giving early warning for prevention of flooding and for detecting illegal parking at restricted roads within PRH estates for better road management.

Pilot Mobile Application System for Daily Patrol

23. A new pilot mobile system was launched to ten selected PRH estates in March 2024 for enhancing daily patrol duties. Security staff can report any incidents or events using mobile phones during their daily patrol e.g. they can record damages identified to facilitate prompt repair and cleansing work. The pilot system is being extended to a shopping centre and a carpark in September 2024. The one-off implementation cost is estimated to be \$6.3M.

Car Park Management System (CPMS)

24. A new CPMS for carpark users to submit monthly parking space applications electronically was launched in September 2023. The system includes a new electronic ballot function for allocation of monthly car parking spaces. The one-off implementation cost was \$19.4M.

25. In addition to the smooth rollout of the electronic functions under the CPMS, we are exploring enhancements to the system for introducing smart carpark solutions such as automatic license plate recognition system, parking guidance system for indicating carpark space vacancy, payment processing system to settle parking fees through various electronic platforms and centralised management system for implementing electric vehicle charging services with related payment process etc. in HA's carparks. Besides, a big data analytics platform supporting rental assessment for commercial properties was rolled out in January 2022, thereby enabling HA to automatically collect data from various external sources and perform rental analysis efficiently.

Other Initiatives

26. We are conducting trial use of drones to assist our routine maintenance work in some PRH estates. For instance, drones-mounted thermal imaging camera and visual camera are being used to assist green roof inspections in some PRH estates. We are also exploring a new e-Service to PRH tenants so that they can make online requests for in-flat inspection for repair like water seepage through iHousing app or e-Services for PRH tenants in HA's website. The new chatbot to be launched in August 2024 (see paragraph 8 above) will provide an electronic communication channel for tenants to make enquiries and give suggestions on estate management such as cleansing and security matters.

IT BUDGET AND EXPENDITURE

27. HA's IT expenditure estimates for the period from 2022/23 to 2027/28 are summarised as follows –

	2022/23*	2023/24	2024/25	2025/26	2026/27	2027/28
Capital expenditure	\$175M	\$181M	\$256M	\$366M	\$465M	\$303M
Recurrent expenditure	\$251M	\$302M	\$352M	\$405M	\$475M	\$499M
Total:	\$426M	\$483M	\$608M	\$771M	\$940M	\$802M

* actual expenditure

FINANCIAL, STAFFING AND LEGAL IMPLICATIONS

28. There is no legal implication. Financial implications and the estimated manpower requirement for individual IT projects are approved by relevant committees or delegated financial authority as appropriate.

PUBLIC REACTION/PUBLICITY

29. No publicity will be given on the information in this paper. However, we will from time to time promote HA's IT initiatives through various channels, e.g. press releases, media interviews, HA/HD website, posters in public housing estates and HA's mobile applications.

INFORMATION

30. This paper is issued for Members' information.

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List of Approved Projects in Progress ^{Note}

	Project Titles
<i>Cross Divisions</i>	
1	Implementation of Integrated Building Information Modelling and Geographic Information System Portal
2	Revamp of Enterprise Resource Planning System
<i>Corporate Services Division</i>	
3	Implementation of chatbot for HA
4	Enhancements for Finance Module of Enterprise Resource Planning System
5	Implementation of Public Housing Development Financial Assessment System
6	Enhancements for Human Resource Management System
7	Enhancements for e-Learning Portal
8	First batch implementation of Centrally Managed Messaging Platform
9	Upgrade of operating system for personal computers
10	Enhancements for Windows server update services
11	Enhancements for client management solution
12	Enhancements for Corporate Identity Management Program
13	Replacement of mobile phones for Mobile Workplace Services
14	Expansion of HA-Cloud for revamp of e-services platform
15	Upgrade of storage system for HA-Cloud
16	Product diversion for HA-Cloud database software and pilot database migration
17	Enhancements and upgrade of aging hardware for network monitoring system
18	Upgrade of aging network equipment for HA-Cloud
19	Upgrade of aging network equipment for remote offices at HA Customer Service Centre at Lok Fu and estates
20	Pilot project on provision of software-defined wide area network
21	Provision of security risk assessment and audit services for HA information systems
22	Provision of services to renew and maintain the ISO/IEC 27001 and ISO/IEC 27017 certifications and extend ISO/IEC 27017 certification scope
23	ISO/IEC 20000 certification renewal audit

Note The list includes projects with costs of \$1M or above.

	Project Titles
<i>Development and Construction Division</i>	
24	Redevelopment of Counterparty Management Information System
25	Enhancements for Development and Construction Site Mobile System
26	Enhancements for Housing Construction Management Enterprise System
27	Enhancements for New Performance Assessment Scoring System Computer System
28	Study to establish a Common Data Environment
29	Upgrade of sectional share drive
<i>Estate Management Division</i>	
30	Implementation of Asset Management System
31	Implementation of Smart People Flow Monitoring System at Domain
32	Implementation of digital log book for building services
33	Implementation of new e-Service for Public Rental Housing tenants to make online in-flat inspection requests
34	Implementation of pilot Mobile Application System for Daily Patrol
35	Implementation of Tenancy Abuse Information System
36	Implementation of new electronic payment option through Faster Payment System for fixed penalty (traffic contraventions)
37	Migration of Housing Department Facial Attendance System to HA-Cloud
38	Enhancements for Estate Management and Maintenance System - Revenue Management Sub-system
39	Enhancements for Estate Management and Maintenance System - Domestic Tenancy Management Sub-system
40	Enhancements for Mobile Application System for Housing Management for case investigation for public housing resources management
41	Enhancements for Car Park Management System
42	Enhancements for Non-Domestic Management System
43	Enhancements for Performance Monitoring Report System
44	Enhancements for Works Frontend System
<i>Strategy Division</i>	
45	Redevelopment of Business Rule Engine Module for Public Rental Housing Application System
46	Implementation of online service and administration system for queuing management at Housing Authority Customer Service Centre
47	Revamp of Housing Authority Sales and Subsidies System
48	Enhancements for Subsidised Sale Flats System for supporting of Subsidised Sale Flats Schemes

	Project Titles
49	Enhancements for Public Rental Housing Application System
50	Enhancements for e-Services for Public Rental Housing Application
51	Enhancements for Estate Management and Maintenance System - Application and Allocation Sub-system
<i>Independent Checking Unit</i>	
52	Implementation of Knowledge Management System in building control
53	Enhancements for IT systems of the Independent Checking Unit to provide online purchase of records of statutory notices/orders
54	Enhancements for Housing Electronic Plan Submission System
55	Enhancements for Housing Electronic Building Records Online System
56	Enhancements for Lift Inspection Focus Team Management System

List of e-Submission Services

1	Sale of Home Ownership Scheme Flats Application Form (White Form)
2	Sale of Home Ownership Scheme Flats Application Form (Green Form)
3	White Form Secondary Market Scheme
4	Sale of Green Form Subsidised Home Ownership Scheme Flats Application Form
5	Application Form for Public Rental Housing
6	Hong Kong Housing Authority's e-services - iHousing
7	Abuse Report Form
8	Application for "Temporary Stay" of Overseas Domestic Helper
9	Application for Air-Conditioning Installation
10	Tenant's application for alterations of landlord's fixtures
11	Application for Approval of Plans of Building Works and/or Street Works and Certificate of Preparation of Plans
12	Proposal for Modification of and/or Deviation from the Provisions of the Buildings Ordinance and/or Regulations Made Thereunder
13	Application for Consent to the Commencement and Carrying out of Building Works or Street Works
14	Certificate on Completion of Building Works not Resulting in a New Building or of Street Works
15	Application for Approval of Plans of Building Works and/or Street Works and Certificate of Preparation of Plans (Submission by Chief Structural Engineer/Chief Geotechnical Engineer involving Professional Services Provider's design)
16	Application for Concurrent Consent to the Commencement of Building Works
17	Request for Fast Track Processing of Plans of Alteration and Addition Works and Certificate of Preparation of Plans
18	Certificate on Completion of Building Works Resulting in a New Building and Application for Permit to Occupy such Building
19	Application for Renewal of Consent to the Carrying Out of Building Works or Street Works
20	Certificate on Completion of Building Works Resulting in a New Temporary Building, a New Building or Part of a New Building and Application for Temporary Occupation Permit in respect of such Building or Part
21	Certificate on Completion of Demolition Works

22	Notice of Intended Material Change in the Use of a Building
23	Application for Permit to Erect a Contractor's Shed
24	Application for Permit to Erect a Temporary Building
25	Application for Prior-acceptance/Renewal of Structural/Geotechnical Computer Program
26	Request for Fast-track Processing of Alteration and Addition Plans for Signboard and Self-certification by Chief Professional/Chief Structural Engineer
27	Develop mobile solution to enhance site supervision and housing management
28	Notice and Certificate of Completion of Class III Minor Works
29	Notice of Commencement of Class II Minor Works
30	Certificate of Completion of Class II Minor Works
31	Submission of Supplementary Documents or Information of Minor Works
32	Notice of Commencement of Class I Minor Works
33	Certificate of Completion of Class I Minor Works
34	Request for Submission Number for Class III Minor Works Relating to the Erection or Alteration of Signboard
35	Notice of Change in Appointment of Minor Works (Registered Structural Engineer/Chief structural Engineer in Housing Department, Registered Geotechnical Engineer/Chief Geotechnical Engineer in Housing Department or Prescribed Registered Contractor)
36	Notice of Cessation of Appointment or Nomination of Prescribed Building Professional (Minor Works)
37	Notice of Change in Appointment of Minor Works (Authorized Person or Registered Inspector/Chief Professional in Housing Department)
38	Notice of Commencement of Additional Class I Minor Works
39	Notice of Commencement of Additional Class II Minor Works
40	Notification of Nomination of Temporary Acting of the Prescribed Building Professional (Minor Works)
41	Notice of Cessation of Prescribed Registered Contractor (Minor Works)
42	Application for Assessment of Premium (Home Ownership Scheme/Tenants Purchase Scheme/Green Form Subsidised Home Ownership Scheme) (Only for Flats of which the 5 year Alienation Restriction Period has Expired)
43	Application for Assessment of Premium (Home Ownership Scheme/Tenants Purchase Scheme) (Only for Flats within the 5 year Alienation Restriction Period)
44	Application for Certificate of Availability for Sale

45	Application for Certificate of Eligibility to Purchase
46	Application for Addition/Deletion of Family Member(s) (After In-take)
47	Application Form for Addition/Deletion of Family Members/Change of Ownership Subsequent to Loan or Subsidy
48	Application Form for Subsequent Changes to Loan or Subsidy
49	Application for Display of Banners/Publicity Boards by Councillors/Organisations in Public Rental Housing and Interim Housing Estates (Applicable for Non-election Period)
50	Application for Holding Charitable/Fund-raising Activities in Estates/Courts by Organisations
51	Application for Self Decoration (For New Intake Estate/Court)
52	Application for Decoration Work by Decoration Contractors (For New Intake Estate/Court)
53	Application/Requisition Form for Permission to Refinance a Flat Purchased under the Subsidised Sale Flats Schemes
54	Application for Hiring Promotional Venues and Kiosk
55	Notice of Inspection and Certification of Prescribed Building or Building Works and Certificate of Completion of the Associated Alteration or Strengthening Works involving Minor Works
56	Application for Change of Information on Record of Purchasers (For Use before Execution of Deed of Assignment) (HOS)
57	Application for Change of Correspondence Address (For Use before Execution of Deed of Assignment) (HOS)
58	Application for Addition/Deletion of Family Member(s) (For Use before Execution of Deed of Assignment) (HOS)
59	Application for Rescission (For Use before Execution of Deed of Assignment) (HOS)
60	Application for Change of Information on Record of Purchasers (For Use before Execution of Deed of Assignment) (GSH)
61	Application for Change of Correspondence Address (For Use before Execution of Deed of Assignment) (GSH)
62	Application for Addition/Deletion of Family Member(s) (For Use before Execution of Deed of Assignment) (GSH)
63	Application for Rescission (For Use before Execution of Deed of Assignment) (GSH)
64	Application for Monthly Parking Space (PRH/Courts)
65	Application for Monthly Parking Space (Factory)
66	Application for Change of Tenant
67	Application for Extended Stay in Public Rental Housing Flat/Interim Housing Unit

68	Application for Fixed Term Licence under Grant of New Tenancy Policy
69	Application for Grant for Emergency Alarm System
70	Application Form for Addition of Household Member(s)
71	Application Form for Deletion of Household Member(s)
72	Application Form for Transfer
73	Conditional Temporary Stay
74	Declaration for Occupation Position of Household(Applicable to Application for Extension of Conditional Temporary Stay)
75	Generic Marking Scheme System - Application for Service Dog Keeping in Public Rental Housing Flats
76	Housing Subsidy Policy and Policy on Safeguarding Rational Allocation of Public Housing Resources (Commonly referred to as the “Well-off Tenants Policies”) Declaration Form
77	Housing Subsidy Policy and Policy on Safeguarding Rational Allocation of Public Housing Resources (Commonly referred to as the “Well-off Tenants Policies”) Application for Fixed Term Licence
78	Income and Assets Declaration Form for Application for Paying Normal Rent/Licence Fee or 1.5 Time Net Rent/Licence Fee Plus Rates or Double Net Rent/Licence Fee Plus Rates/Continuous Renting Public Rental Housing Flat/Grant of Tenancy Under Housing Subsidy Policy & Policy on Safeguarding Rational Allocation of Public Housing Resources (Commonly referred to as the “Well-off Tenants Policies”)
79	Policy on Grant of New Tenancy/Tenancy Management Policies for Public Rental Housing/Interim Housing Management Policy/Redemption of “Letter of Assurance” - Income and Assets Declaration Form
80	Requisition Form - Application for Rent Assistance
81	Tenancy Management Policies for Public Rental Housing - Income and Assets Declaration Form (Relevant to Application for Addition of Household Member(s))
82	Application for Cash Allowance Trial Scheme
83	Application for Nomination Certificate Letting of a Hong Kong Housing Authority Subsidised Sale Flat under the Hong Kong Housing Society T-Home “Letting Scheme for Subsidised Sale Developments with Premium Unpaid”
84	Electricity Supply Application Form (for Use by Tenants of Commercial/Non-domestic Premises)
85	Application for Permission to Carry Out Alteration/Additional Works for Non-Domestic Premises in Estates

86	Certificate of Completion of Structural Alteration/Additions
87	Notice to Quit
88	Application for Transfer of Ownership (after Execution of Assignment)
89	Application for Change in Mortgage Arrangement
90	Application for Consent to Enter into Staff Housing Loan Mortgage (Tenants Purchase Scheme)
91	Application for Access to Information
92	Personal Data (Privacy) Ordinance Data Access Request Form
93	Application Form for Contract/Graduate/Term Staff Post in Hong Kong Housing Authority
94	Online Form for Enquiries, Comments or Complaints
95	Declaration Form on Occupancy Status and Particulars of Domestic Property Ownership in Hong Kong
96	Declaration Form on Occupancy Status (Applicable to households who are concurrently required to make declaration pursuant to “Well-off Tenants Policies”)
97	Housing Smart Intake System