

**AUDIT & RISK MANAGEMENT COMMITTEE****27 JANUARY 2020**

<b>REPORT TITLE</b>	<b>Enterprise Architecture Design</b>
<b>REPORT OF</b>	<b>Nicola Boardman (Director of Change &amp; Organisation Design)</b>

**REPORT SUMMARY**

This report has been prepared in response to a request by the Chair of the Audit and Risk Management to provide an update on the Council's Enterprise Architecture to provide assurances that the Council's application estate is integrated and not standalone.

**RECOMMENDATION/S**

- That the report be noted.

## **SUPPORTING INFORMATION**

### **1.0 REASON/S FOR RECOMMENDATION/S**

- 1.1 To provide Members of the Audit & Risk Management Committee with an opportunity to review the Enterprise Architecture of the Council.

### **2.0 OTHER OPTIONS CONSIDERED**

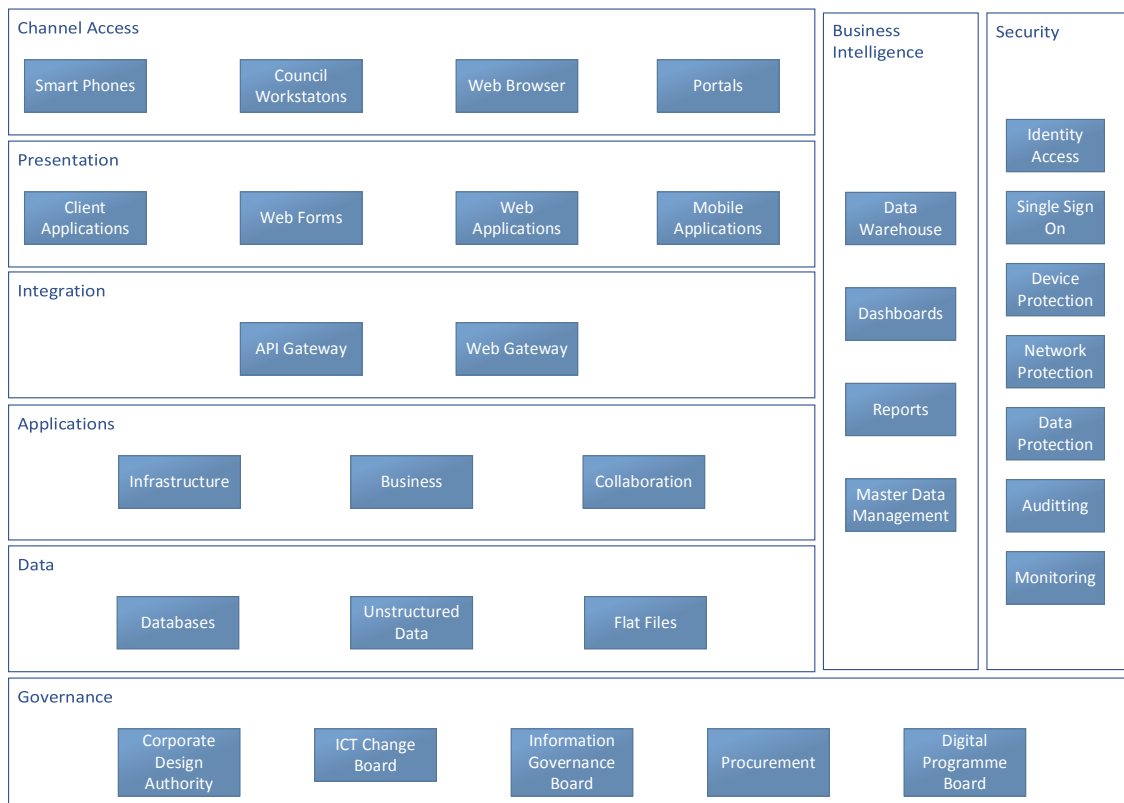
- 2.1 The report is provided for information purposes in response to a direct request by the Chair of the Audit & Risk Management Committee. No other options have been considered.

### **3.0 BACKGROUND INFORMATION**

- 3.1 There are 197 applications utilised across the council.
- 3.2 Applications range from small systems used by a specific team to systems used across the whole Council.
- 3.3 Some applications provide forward facing services for residents and businesses or hold data that needs to be accessed by external partners.
- 3.4 The data held within these applications support decision making and may also contain data of interest to the public.
- 3.5 Applications may be installed on the Council's internal infrastructure or may be hosted external to the Council.
- 3.6 Enterprise Architecture generally consists of 4 architecture domains:
- Technology Architecture – the servers, storage and network upon which the applications are run.
  - Application Architecture – the applications used to deliver the services, how they integrate and securely accessed by the users.
  - Data Architecture – how data is stored, secured while at rest and in transit. How the data is utilised to support decision making
  - Business Architecture – how business functions and processes map onto the applications and the data they need.
- 3.7 This report will focus on the integration of applications and data. The report will also detail the governance in place to ensure ongoing integration and the strategy to further improve the integration.

#### **Enterprise Architecture**

- 3.8 The below Reference Model details the Enterprise Architecture at a high level.



### *Channel Access*

- 3.9 To support the integration of applications, consideration needs to be given to how the application will be accessed. There are five groups of people who require access to Council applications: Councillors, Residents, Businesses, Council staff and partners. Applications will be accessed from either a smart phone, Council workstation, through a web browser or an application portal.

### *Presentation*

- 3.10 The Presentation layer of the Reference Model details the User Interface for the application.
- 3.11 The application may be accessed via several different methods and therefore consideration needs to be given to the User Interface to ensure integration is simplified.
- 3.12 Client applications, for example Microsoft Outlook client, are installed onto a workstation, either a Laptop, Desktop or Tablet. They are feature rich clients but require the workstation to be connected to the Council network to work so limit how the application can be accessed.
- 3.13 Web-based applications are applications that are accessed via a web browser, for example Microsoft Outlook online. They can be accessed from anywhere there is a connection to the internet (Wi-Fi or cellular) and on any device that has a web browser.
- 3.14 Mobile applications, for example Microsoft Outlook mobile, are applications that are installed onto Smart Phones or Tablets. They can generally be installed from a

publicly accessible application store and can provide access to the application from any smartphone or tablet with a connection to the internet (Wi-Fi or cellular).

- 3.15 Web Forms are similar to web-based applications in that they are accessible via a web browser but are used to raise a request, incident or complaint rather than accessing a backend application.
- 3.16 The above examples of Microsoft Outlook client, Microsoft Outlook online and Microsoft Outlook mobile all provide a user interface to the same backend application, Microsoft Exchange Online, but provide it via different channels.
- 3.17 The Digital Design Principles, detailed in Appendix 2, state that all applications must be accessible from anywhere on any device. This does not limit the application to a single user interface but like Microsoft Outlook must provide the Council with flexibility on how it is to operate.

### *Integration*

- 3.18 The Integration Layer provides the translation and routing from the Presentation Layer to the backend application and data.
- 3.19 The Application Programming Interface (API) gateway is an in-house developed solution for providing the integration between backend application and some customer facing applications. As an example, the API gateway takes the information from a web form within the MyWirral account, translates it and inputs it into a backend application for processing. The API gateway also acts as the gateway for updating the MyWirral account on the progress of the call.
- 3.20 The development of the API gateway will continue as this reduces the reliance the Council has on vendor applications.
- 3.21 The Digital Design Principles require that all future applications have open APIs to enable integration with the API gateway.

### *Applications*

- 3.22 The Application Layer details the applications that support the Service Delivery.
- 3.23 Applications may be hosted on the internal council infrastructure or hosted externally (Software as a Service).
- 3.24 Appendix 1 details all the applications hosted on the Council infrastructure, which server they are installed on, and the database server (and databases) the application connects to.
- 3.25 Regardless of whether the application is hosted internally or externally, the Digital Design Principles apply.
- 3.26 The applications can be divided into three areas.
- 3.27 Infrastructure applications are those that support the underlying technology and provide the platform on which the Business and Collaboration applications can be

run. Examples of such applications are the applications that support the Council network and storage.

- 3.28 Business applications are those that directly support the service delivery. They may provide customer facing services or need to be accessed via partners. An increasing number of business applications are being hosted externally.
- 3.29 Collaboration applications support the collaboration across the Council and with partners. Examples of such applications are Microsoft Exchange which provides email services and Microsoft Teams which provides a variety of collaboration services including conferencing calling and document sharing.
- 3.30 In-house development of applications prevents ongoing license costs. As part of the Digital Programme a roadmap is being created for all applications taking a make, buy or rationalise approach.

#### *Data*

- 3.31 The Data Layer details the data storage for files and application data.
- 3.32 Applications hold structured data in databases or flat file structure. This is held against a data model to organise and standardise the data. Examples of unstructured data include Microsoft Office documents.

#### *Business Intelligence*

- 3.33 Business Intelligence provides the integration of data to support decision making. There are a number of applications within the council that provide this function but there is an ongoing project to rationalise the majority of these applications into a single application.
- 3.34 The Council is also currently exploring Master Data Management. Master Data Management is about bringing all critical data together to provide a single point of reference.

#### **Governance**

- 3.35 Corporate Design Authority – chaired by the Director of Change and Organisational Design, this acts as a gateway for all new IT solutions. This ensures alignment with the Council's Digital Design Principles and digital strategy. Reports up the Investment and Change Board.
- 3.36 ICT Change Board – chaired by the Head of ICT and Digital, the ICT Change Board ensures all changes to the ICT infrastructure have no detrimental impact on the IT infrastructure or distribution to service.
- 3.37 Information Governance Board – chaired by the Head of ICT and Digital also attended by the Deputy Senior Information Risk Officer (SIRO). This board is responsible for overseeing the data security, governance and integrity.

3.38 Digital Programme Board – chaired by the Director of Change and Organisational Design, this board oversees all projects within the Digital Programme.

3.39 Procurement – The Procurement Initiation Approval (PIA) requests whether the procurement includes any IT application or IT hardware and, if so, asks for confirmation the solution has been approved by the Corporate Design Authority. ICT and Procurement also have a monthly review all procurement exercises involving IT applications or IT hardware.

#### **4.0 FINANCIAL IMPLICATIONS**

4.1 There are no financial implications arising as a direct result of this report.

#### **5.0 LEGAL IMPLICATIONS**

5.1 There are no legal implications arising as a direct result of this report.

#### **6.0 RESOURCE IMPLICATIONS: ICT, STAFFING AND ASSETS**

6.1 There are no resource implications arising as a direct result of this report.

#### **7.0 RELEVANT RISKS**

7.1 All risks associated with the Enterprise Architecture are captured within either the Information, Digital Programme or ICT risk register.

#### **8.0 ENGAGEMENT/CONSULTATION**

8.1 A cross party Digital Members Consultation group has been setup to update and review the Digital Programme with Councillors.

#### **9.0 EQUALITY IMPLICATIONS**

9.1 There are no equality implications arising as a direct result of this report.

#### **10.0 ENVIRONMENT AND CLIMATE IMPLICATIONS**

10.1 One of the Digital Design Principles is to have applications available from anywhere on any device. This will prevent people having to travel to specific locations to access applications.

10.2 Developing the Council's Collaboration applications is a deliverable of the Digital Programme, this will support the Council to increase the usage of video and audio conferencing for meetings and collaborate on documents without having to meet face to face. This will reduce travel requirements.

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**BACKGROUND PAPERS**

N/A

**SUBJECT HISTORY (last 3 years)**

<b>Council Meeting</b>	<b>Date</b>

## Appendix 1: Application Mapping between Application Servers and Databases - CONFIDENTIAL

### Appendix 2: Digital Design Principles

To support the council's digital transformation a number of design principles have been developed against which systems will be reviewed:

- Agility
  - Systems should be securely available from anywhere on any device
    - Is the system web based?
    - Is the application available in public app stores?
    - Can the system be used when the device is offline?
    - The council utilises Microsoft InTune for Mobile Device Management, if data can be downloaded from the system, how can this be prevented on non-compliant (e.g. unencrypted) devices?
- Simplicity
  - Simple to support and administer
    - What monitoring is available? The council utilises System Centre Operation Manager for monitoring some applications, is a management pack available?
    - How can the system support the council's drive to increase automation?
    - What Artificial Intelligence is built into the system?
    - Does the system support single sign-on? What protocols?
    - Customisation can add to support complexity and therefore must be simple, for example, utilising low code.
- Integration and Collaboration
  - Partner organisations may require access to the information
    - Can the system support guest access (e.g. non council employees)? How is access granted and controlled?
  - Integration with the council's customer portal maybe required
    - Does the system have open Application Programming Interfaces (APIs)?
    - Does the system provide direct access to the council's data?
  - Business Intelligence
    - The council utilises Microsoft's PowerBI for business intelligence, can the system integrate with PowerBI?