ISD: HLD Template

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| Service |  |
| Author |  |
| Contributors |  |
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**Prologue**

This is a high level design template designed to help you plan and assess your design. It has suggested sections and contents of the various sections. However these are not exhaustive and you may decide that additional sections are necessary or those present are not applicable.

If you add additional section please make this clear. Sections that are not applicable should be left in and commented as not applicable.

If you require assistance please speak with the design office before submitting.

# Design ownership

## Ownership Matrix

The following table tracks ownership and accountability of the design document and is used to assist with future sign off. Your design may need additional roles and they can be added.

|  |  |  |
| --- | --- | --- |
| **Role** | **Summary of content provided or responsibility** | **Named individual** |
| Design owner  (Essential) | Owns design document, versioning, content, syndication and handover to delivery, operations and governance teams. |  |
| Project manager |  |  |
| Service owner or proposed SO section  (Essential) | Monitors service change or service introduction. |  |
| Service operations manager or proposed SOM section  (Essential) | Monitors operational change or operational introduction. |  |
| Design mentor  (Essential) | Member of Design Advisory Group assigned to this design |  |
| Business | Ensure business architecture/requirements are monitored, maintained and matched to the solution. |  |
| Applications and data | Ensures applications and data architecture |  |
| Technology | Ensure technology required for solution is in line with architectural principles, standard technologies |  |

# Context

## Summary

Please provide a very high level summary of the service.

You should assume that this section is being read by someone unfamiliar with the technologies and products. This section may be read by people who do not need to read the rest of the document. Repetition of facts that you express in more detail later on is expected.

Try to answer the following questions in summary form.

- The name of the service/system

- Where it fits in context of the business and other existing solutions and technologies

- What parts of business are affected?

- What is being done to it (New, Change, Upgrade)

- How it operates currently if you are making a change

- What are the expected outcomes

- At a very high level why this is being done

- At a very high level how this is being done

## Service categorisation

Please state the business criticality of your requirements.

# Links to documentation

Provide links to existing documentation for this design. Examples include;

- Business case

- Project proposal

- Project initiation documents/briefs

- Existing design documentation (for previous versions etc)

This can be deposited with the Design office who will make sure all of the stakeholders for this design have access to read these.

# Drivers and objectives

## Drivers

This section should state **why** the design is required in the first place. What was the initiator of this business or technology change.

Common drivers are customer requirements, security considerations, consolidation/centralisation, service improvement, external audit, financial, failing system etc.

This would normally be available from the proposal author or from the domain lead or section Director.

## Requirements

Depending on the size of the project include the full set of requirements here or a link to a separate requirements document.

This can be deposited with the Design office who will make sure all of the stakeholders for this design have access to read these.

## Objectives

This section should include more detailed objectives based on requirements and drivers. What would you expect once the design/service had been delivered. These will be tested as part of the design process. They should therefore be specific, measurable, achievable, realistic and timed. The objectives should cover all elements of the design including functional and non-functional aspect.

**Examples of bad objectives are;**

* Simplify the process of report generation for various metrics.
* Move to the newest version of SQL.

**Examples of good objectives are;**

* Produce single click financial reporting from the myFinance system for the finance department based on 8 defined report criteria for use in financial year 2015-2016.
* Update the current database management software from Microsoft SQL server 2008 to Microsoft SQL server 2008R2 in time for start of session on the myFinance reporting system.

As you write objective think about how you would judge success. If applicable consider using the following table.

|  |  |  |
| --- | --- | --- |
| **ID** | **Objective statement** | **Success criteria** |
|  |  |  |
|  |  |  |
|  |  |  |

- use cases

## Impact of no action

If the design as stated in the summary were not progressed what would be the impact or potential to the business.

# Assumptions

A set list of assumptions is provided here. Please detail how your design has addressed each of the set assumptions. You may refer to future sections if applicable.

These assumptions are not statements of UCL business practice but are used for planning in the event of worst case.

You should also add any assumptions you have made.

|  |  |
| --- | --- |
| **Assumption** | **Assessment or impact on this design** |
| UCL will grow year by year at a rate of 10% |  |
| ISD will shrink year by year at a rate of 1% in real terms |  |
| UCL will be operating in a split data centre model with 1 half at a range of 30km |  |
|  |  |
|  |  |
| **Design assumptions** |  |
|  |  |
|  |  |

# Constraints

Please detail and constraints on the design as they currently exist.

This may be due to;

1. Existing in place systems, technologies, software.
2. Lockstep due to interfaces with other pieces of infrastructure or software.
3. Limited funding to the project or business unit.
4. Limited human resources or skills.
5. Hard delivery timescales.
6. Customer requirements or business processes that are difficult to change.
7. Pre-arranged purchases of hardware or software.

# Dependencies

Other depts.

Suppliers

Internal groups

Other projects

## Those dependent on this design

# Current state

In some rare case there is no current state and this section can be skipped.

## Logical/architectural summary

Provide a logical summary of the current state. This can be in the form of bullets points for simple systems.

## Logical/architectural diagrams

Provide diagrammatic form of how the various part of your current system design internally interact and the interfaces with customer/users.

Logical diagrams usually do not refer to the technology and servers, just system elements and the interaction between them and the inputs and outputs.  
  
Examples diagram types  
- DFD, ERD, case etc

### Internal interfaces

## Technology summary

A summary of the current hardware, software and or systems and processes. In most cases this will form the scope of physical items being replaces or removed by the design.

## Technology diagrams

Provide diagrammatic view of the hardware or software currently in use. This may take the following forms.

1. Network, server and storage topologies.
2. Reference technical, application or data architectures from suppliers.
3. Database data structures.

## External Interfaces

Placing your system at the centre draw all the interfaces the current system has with systems outside the scope of this design. Examples include;

- Management information systems (myFinance, myView, etc)

- Server infrastructure systems (AD, DNS, email, logging, monitoring)

- ETLs from other databases or information systems

- Storage

If you have interfaces that require changes and you are aware of these please detail the changes planned.

# Current limitations

This section should express the limitations in the current solution or design. These are the gaps in the solution that prevent the objectives being met.

|  |  |  |
| --- | --- | --- |
| **ID** | **Limitation name** | **Limitation summary and impact** |
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# Target state logical

## Brief option/alternatives

What alternatives were considered and why was this option chosen

## Changes to Logical design

Provide a revised summary of the logical view if it has changed.

## Known limitations

Detail anything that will not be available in the target state logical model

- 1 year view

- 5 year view

SW: scale due to change of institute (link to strategy of UCL)

## Residual risk and limitations

## Design schematics

## Physical solution summary

A summary of the target physical hardware, virtual machines, database instances, software and or systems and processes. It most cases this will form the scope of the new physical items being built, installed or purchased by the design.

You should refer to reference designs here from suppliers or SMEs.

## Physical solution diagrams

Provide diagrammatic view of the new hardware or software. This may take the following forms.

1. Network, server and storage topologies.
2. Reference technical, application or data architectures from suppliers.
3. Database data structures.

## Interfaces

Placing your system at the centre draw all the interfaces the new system has with systems outside the scope of this design. Examples include;

- Management information systems (myFinance, myView, etc)

- Server infrastructure systems (AD, DNS, email, logging, monitoring)

- ETLs from other databases or information systems

- Storage

For each interfaces please detail the design of those interfaces here.

|  |  |  |  |
| --- | --- | --- | --- |
| **Interface summary** | **Summary of work required due to this change** | **Effort** | **Owner** |
|  |  |  |  |
|  |  |  |  |
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# Service continuity capability

## Criticality

What criticality level is this service?

- Impact of a days outage to the service

- Impact of a total loss of the service

## Backup requirements and solution

Explain what elements of the solution described in the physical summary and diagrams require backup.

- How will this backup be performed

- How often with this backup occur

- How many versions will be retained

- How will data be recovered in the event of a full loss, partial loss

- Is a business continuity plan required or available for this service

## Anticipated failure states

Please detail how your solution and service is expected to function and is anticipated to be effected by the following failure states

|  |  |  |
| --- | --- | --- |
| **Failure mode** | **Required function** | **High level process to achieve requirement** |
| Loss of single site due to planned maintenance |  |  |
| Loss of single site due to unplanned maintenance |  |  |
| Loss of data either partial or complete (malicious act or corruptions) |  |  |
| During component updates (please add for each component) |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Single points of failure

Please detail any known single points of failure in the system.

## Symmetry

Please detail any asymmetry in the system between primary and secondary sites if applicable.

# Update methodology, frequency, cost

For each major element of the systems please detail the high level process for keeping the system up to date.

- Frequency

- Type

- Responsibility

- Anticipated costs

-

# Benefits (high level)

# Residual risks

The following risks will remain after the successful delivery of the desgn

|  |  |  |
| --- | --- | --- |
| Risk | Type | Summary |
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# High level costs of solution (excluding project costs)

Please use the logical and physical summary to help produce a full hardware/software/facilities costs

## Capital expenditure

Examples:

Servers

Upfront license costs

Network hardware

Facilities

## Capital generated operating expenditure

Examples:

Software support

Re-occuring license maintenance

Per head or per “size” licensing increases

Hardware maintenance costs

Yearly health checks or other best practice in service consultancy

## Operating expenditure

Hosting costs

Lease lines and communications charges

- Hosting

- Backup

- Communications and networks

# High level support structure, capabilities and responsibilities

Please detail the anticipated high level support structure for the major components of the designed solution.

## Service governance

Service owner

Service operation manager

Business owner

## Operational support

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element** | **Capabilities required** | **Anticipated load** | **Current capability and capacity** | **Training or additional resource required** |
|  |  |  |  |  |
|  |  |  |  |  |

# Decommissioning targets

- Services

- Infrastructure

From the current state logical and physical statement please detail which technologies will be decommissioned due to this solution.

**Examples of elements that will be decommissioned:**

Physical and virtual servers

Software and hardware licensing and maintenance agreements

Processes

Webpages

|  |  |  |  |
| --- | --- | --- | --- |
| **Element** | **Replaced by** | **Type of decommission activity** | **Anticipated decommission timescale (measured from point of this designs delivery)** |
|  |  |  |  |

# Block scheduling, lifecycle

# Potential future improvements

# Design review log and schedule

For each:

- Examples

- Output goes to…

- Purpose of the element

- Match to principle

- Eventually referenced n other processes like CAB