

VDI Home Office Use Cases & Archetypes Recommendations & Research Plan

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EXECUTIVE SUMMARY

INTRODUCTION

In today's environment, it's vital for businesses to implement remote working for their teams, while enhancing security, reducing infrastructure cost, and simplifying resource and asset management.

To achieve this Northwestern Mutual wants to utilize Microsoft Azure Virtual Desktop as remote working solution. As part of facilitating and managing this change, Workspace Experience Solutions and Experience Design for ICS are working to identify and develop "app stacks" that will bundle software applications tailored to specific VDI user groups.

BACKGROUND

The term Virtual Desktop refers to a computer environment where an employee connects to a data center in order to access the data, software applications, and services they need to use their job instead of launching those items directly from their computer.

The NM home office employs ~11,000 people; approximately 1/3 (~3500) of whom have access to a VDI.

BUSINESS RATIONALE

From a business perspective, providing standardized app stacks allows for:

- Streamlined updates: administrators and technical staff can patch, update, or change applications, services, and software across a branch of the business instead of doing so individually.
- Improved Recovery: because applications and files are backed up to a data center instead of being stored locally, replacing a lost, stolen, or damaged device is significantly simpler.
- Security: VDIs help businesses maintain complete confidentiality, as applications and files live in a data center and not on the end-user device.
- Reduced Infrastructure Costs: the development of app stacks will allow endusers to have immediate access to the apps they need to complete their jobs, thereby increasing productivity and reducing support channel requests.
- Simplified Resource Management: Reduces redundancies and costs by allowing NM to better size the number of software licenses needed when renewing or implementing new third-party solutions.

EXECUTIVE SUMMARY (cont'd)

END USER BENEFIT

Providing standardized app stacks will streamline workflows and improve both device set-up and access. This solution will make the apps end-users need to complete their jobs immediately available to them.

This transition will improve user access to NM resources by consolidating software applications, data, and services into a single repository. This is a first step toward allowing users to gain secure, remote access to files, applications, and services using their own smartphone, tablet, laptop, or desktop computer.

RESEARCH TO DATE

A collaborative deep dive of existing quantitative data has been completed in order to identify usage patterns, develop project hypotheses, and gather insight related to the following questions:

- How many VDI users are within the NM home office.
- How often VDI users are accessing specific programs
- Correlations within respective job families and across the organization
- How much time end-users are spending using specific programs.

RECOMMENDED RESEARCH

The quantitative data collected and analyzed to date provides a statistically meaningful interpretation of numerical information relative to end-user questions concerning "how many" or "how much."

Enriching the quantitative data we have through the collection of qualitative data will providing usage contexts that reflect user preferences, needs, desires, or expectations. By understanding why VDI end users are doing certain things we are better able to make informed design decisions around their preferences, needs, desires, or expectations; and balance these with our business needs and objectives.

The recommended experience research will seek to collect the following types of information:

- **Biographical** one person's unique experience.
- Phenomenological the collective shared experiences of a group or segment.
- **Case Study Related** single experience instances that are shared by groups, segments, populations, or combinations of all three.
- Grounded Theory hypotheses based on real end user experiences combined with quantitative usage data; along with trends observed among information gathered around information methodologies 1 – 3.

END-USER BEHAVIORAL HYPOTHESES & QUALITATIVE QUESTIONS:

HYPOTHESES

- 1. Users struggle when setting up a VDI to access NM apps and data.
- 2. When appropriate, users would like the ability to use their own devices with NM apps and data.
- 3. This change will streamline user workflows by placing all items in a single repository.
- 4. Segmented groups and roles will use common app stacks.
- 5. Engineering and Tech roles will have the widest variety of apps and needs
- 6. Excluding IT, end users within the same Job Family/Function will have similar app stacks and needs.
- 7. All users will have a base, single suite of common apps (Microsoft 365 applications, Chrome, Zoom, Slack, etc.)
- 8. Most end users prefer to run specific apps from their VDI and other apps from their desktop; transitioning between them as they work.
- 9. Many common apps are accessed from the end user's desktop and role specific apps are accessed through the VDI.

QUALITATIVE QUESTIONS

- 1. Why are users struggling to set up and/or access NM apps and data from VDI environments?
- 2. Would users prefer to access NM apps and data from personal devices? Why would they need this functionality?
- 3. Why and how would placing all applications within a single repository help VDI end-users?
- 4. Which groups and roles will use common/similar app stacks? Why?
- 5. Which apps are those Engineering and Tech roles using and how do the differ from other roles within the company? Why?
- 6. Which Apps comprise the base (common suite) of apps needed by all users?
- 7. Why and how do users prefer to run specific apps from their VDI and other apps from their desktop; transitioning between them as they work?
- 8. Which groups should be excluded from this effort (whether only at this time or indefinitely) and why?

PRECURSORY RESEARCH: Methods, Summary, & Timeline

Method	Summary of Effort						
	Summary of Enort	JAN	FEB	MAR	APRIL	MAY	JUNE
COMPLETED: Resource Deep-Dive	Pre-existing research and information regarding VDI usage was leveraged to inform future research and deliverables.	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
COMPLETED: Quantitative Data Analysis	An in-depth review of existing quantitative data was conducted, and a comprehensive dashboard was built to represent current state.	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
COMPLETED: Research Plan	Based on the outcomes of our resource deep-dive and quantitative data analysis, a user- centric research informed will be developed.	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark



Research Plan

The Northwestern Mutual Life Insurance Company – Milwaukee, WI

SUMMARY of OBJECTIVES, METHODOLOGIES, DELIVERABLES & RATIONALE

Objectives	Methodology	Deliverables	Rationale			
Review the current user experience among VDI users to better understand the workflows and technology touchpoints they have developed when engaging NM using VDI supported applications.	 Surveys Observational Research Contextual Inquiry Focus Groups 	 User Workflows Experience Maps Concept Models Usability/Analytics Report Accessibility Analysis 	This research needs to be updated in order to benchmark current usage and develop goals for future implementations.			
Evaluate the overall usability of the solutions in play when users are completing daily and long term tasks using VDI technology toward identifying bottlenecks and/or opportunities	 Surveys Observational Research Usability Benchmarking Touchpoint Analysis Interviews & Focus Groups 	 Service Blueprinting Activity Diagrams User Workflows Usability/Analytics Report Accessibility Analysis User Segmentation 	The deliverables from this exercise will provide a view into how service and related experiences are delivered and set a baseline for measurement; including the implementation of processes to optimize the user experience toward sustainability.			
Identify the circumstances and frequency of interactions during which issues occur; including those requiring the intervention of technical support entities.	 Surveys Usability Benchmarking Touchpoint Analysis Interviews & Focus Groups 	 Service Blueprinting Activity Diagrams User Workflows Usability/Analytics Report Accessibility Analysis Experience Maps 	As we roll out a solution that can be supported by either in-office or home office technical support entities, we need to develop an understanding around the circumstances under which users engage that support, where they go, and what that volume looks like.			

RECOMMENDED RESEARCH: Methods, Summary, & Timeline

Method	Summary of Effort	Research Week (Estimate)												
		1	2	3	4	5	6	7	8	9	10	11	12	
User Empathy Interviews	Review the current user experience among VDI users to better understand the workflows and technology touchpoints they have developed when working on both their desktop and virtual machines.	V	~	\checkmark	\checkmark	V	V	V	\checkmark	V				On-site or Remote
Touchpoint Analysis	The overall usability of existing solutions will be analyzed toward		\checkmark	\checkmark	V		✓ ✓	✓ ✓	V	~	~	V	~	On-site or Remote
Contextual Inquiry	identifying opportunities. Existing technology touchpoints and usage behaviors will be assessed and mapped against proposed improvements to determine	~				\checkmark								
Usability Benchmarking	common workflows and journeys and best outcomes.													

METHODOLOGIES 1 & 2: – Interviews & Focus Groups

EMPATHY INTERVIEWS

USER INTERVIEWS:

Conducting end-user interviews provides qualitative insights into what users think about systems, applications, products, processes, or services. It allows users to enrich quantitative data by directly informing us what they find important, necessary, or preferred. This allows us to integrate user feedback into our solutions in order to provide a more desirable outcome tailored to end-user needs.

INTERVIEW STRUCTURE:

Field users will be recruited to participate in 60-minute, individual interviews where they were asked to share their insights and experiences regarding their in-office and remote Meeting and Telephony Experience(s).

GOAL:

The goal of these interviews is to gather qualitative information regarding the use of a system, behaviors, habits, preferences, needs, and other learning about that topic.

FOCUS GROUPS

USER FOCUS GROUPS:

Focus groups assess user needs, feelings, pain points, and desires as part of the design process in a group setting.

INTERVIEW STRUCTURE:

Field users will be recruited in groups to participate in 120-minute, moderated focus group where they were asked to share and discuss their insights and experiences regarding their in-office and remote Meeting and Telephony Experience(s).

GOAL:

By bringing together a variety of users to discuss issues and concerns about a system, application, product, process, or service, we are able to observe users' spontaneous reactions and ideas while also observing important group dynamics and potentially assessing organization differences or issues.

The outcomes from individual user empathy interviews may be used to inform the conversational topics used during focus groups and vice versa– depending on which method is used first.

METHODOLOGIES 3 & 4: – Observational Research & Touchpoint Analysis

OBSERVATIONAL RESEARCH

OBSERVATIONAL RESEARCH:

There is often a great disparity between what people say they do and what they actually do, as well as their motivations for such behaviors. To mitigate this, end-users should be observed as they interact in with a system, application, product, process, or service in their natural environment.

STRUCTURE:

In each of the target offices, users will be observed as they interact with their current Meeting & Telephony equipment using an AEIOU framework*. This may involve individual (1x1) interactions, or group interactions.

GOAL:

The goal of observational research will be to better understand how users are actually interacting with Meeting & Telephony equipment, products, & systems.

TOUCHPOINT ANALYSIS

TOUCHPOINT ANALYSIS:

Touchpoint analysis seeks to identify, assess, and prioritize the types of interactions users are having. It documents the points of contact– whether with other people, or inanimate objects– users are having before, during, and after the use of a system, application, product, process, or service.

STRUCTURE:

In each of the target offices, during observational research, user interaction with Meeting & Telephony equipment will be assessed using an AEIOU framework* to better understand who and what is involved in an interaction.

GOAL:

Touchpoint analysis can help us better understand user workflows and journeys, while also assessing satisfaction and points of friction or pain as part of optimizing the user experience.

*The AEIOU framework is used to organize notes taken during observational research and seeks to record:

- user <u>A</u>ctivities
- the <u>Environment in which they take place</u>
- types of Interactions occurring
- the <u>O</u>bjects (touchpoints) they are engaging
- who (<u>U</u>sers) is involved in the interaction

METHODOLOGIES 5 & 6: - Contextual Inquiry & Usability Benchmarking

CONTEXTUAL INQUIRY

CONTEXTUAL INQUIRY:

Contextual inquiry is a supplement to other research methods that adds context to in-depth user observation by asking users after they complete activities to provide information regarding their practices and behaviors.

STRUCTURE:

After observation, as immediately as possible, any users or groups observed will be asked to reflect on what they did and why– including reasoning and motivation.

GOAL:

Contextual Inquiry enriches data collected as part of observations, interviews, and focus groups and provides insight and relevancy to underlying mental models. This can influence how users are trained on new technologies and/or design elements and change management.

USABILITY BENCHMARKING

USABILITY BENCHMARKING:

Usability Benchmarking takes a collection of related workflows and breaks them down into discrete tasks. These tasks are assessed according to how they are completed and success rate.

STRUCTURE:

As part of observational research, any failure points or points at which a user has to regress or backtrack will be documented. The users' time from beginning a task until completion will be timed and compared to other observational research.

GOAL:

Usability benchmarking allows us to reflect on the progress or success of a product or service and compare it against other versions or products. It also allows us to begin establishing metrics in order to measure success later on.

Observational research, touchpoint analysis, and usability benchmarking may be done simultaneously. Contextual Inquiry will be done immediately after individual, observational sessions and should be informed by information gathered during interviews and focus groups.

RECRUITING:

SURVEY SAMPLE SIZE:

The survey sample size should target the population numbers on the following page.

A yes/no question requesting volunteers should be included for Ethnographic research, interviews, and focus groups should be selected from positive responents.

RECRUITING for ETHNOGRAPHIC RESEARCH

Ethnographic research includes:

- Touchpoint Analysis
- Contextual Inquiry
- Usability Benchmarking

Recruiting goals for ethnographic research – Goals for ethnographic research should include approximately the same numbers as provided at left based on saturation point (see footnote).

This research should be done with a broad sampling of users from different departments and filling different role titles.

RECRUITING for INTERVIEWS & FOCUS GROUPS

The following minimum recruiting pool sizes are recommended:

Recruiting goals for Individual Interviews:

- 3 5 individuals for roles filled by <10 people
- 5 7 individuals for roles filled by 10 < 30 people
- **20% for roles filled by >30** (*example: if there are 175 advisors in an office, the recruit pool should be ~35.*)

Recruiting goals for focus groups:

- 2 4 individuals for roles filled by <10 people
- **10% for all other roles** (example: if there are 175 advisors in an office, the recruit pool should be ~17.)
- Recruiting pool for focus groups should seek to assess individuals in different roles within the same office spaces, as well as individuals within specific roles across different offices.

Note:

When conducting user interviews and/or research, saturation is the point at which themes emerge to the extent that conducting more interviews does not result in the identification of new insights. As such, to avoid doing more interviews than needed in each office, analysis to identify themes will be conducted on an ongoing basis. If saturation is received early, no further interviews will be scheduled unless data reflects a need for additional input.

RESEARCH POOL CALCULATIONS: Users, Confidence, & Error Rate

TOTAL @ 33% (national survey / research participation rate)

			response rate		Confidence vs. Error Rate:						
Department	# Users	Pool	35%	95%/5%	90%/5%	85%/5%	80%/5%	95%/10%	90%/10%	85%/10%	80%/10%
Actuarial Total	57	29	10	10	10	10	10	10	9	9	9
CA Admin, Advocacy & SCE Total	13	13	4	4	4	4	4	4	4	4	4
Campus & Event Experiences Total	50	25	8	8	8	8	8	8	8	8	7
Client Experience Total	20	10	3	3	3	3	3	3	3	3	3
Core Data & Analytics Total	219	110	36	33	32	31	30	27	24	22	20
Corporate Audit & AntiFraud Total	18	9	3	3	3	3	3	3	3	3	3
Customer Success Total	248	124	41	38	36	35	33	29	26	24	21
Engineering Solutions Delivery Total	1490	745	246	151	130	113	99	70	54	43	36
Field Experience Alignment Total	20	10	3	3	3	3	3	3	3	3	3
Finance Total	23	12	4	4	4	4	4	4	4	4	4
General Total	29	15	5	5	5	5	5	5	5	5	5
Information Risk & CyberSecurity Total	87	44	15	15	15	15	14	14	13	12	12
Infrastructure & Cloud Services Total	459	230	76	64	60	56	53	43	37	32	27
Marketing Total	15	8	3	3	3	3	3	3	3	3	3
New Business Life/DI/LTC/Ann Total	485	243	80	67	62	58	55	44	37	32	28
Office of the COO Total	10	10	3	3	3	3	3	3	3	3	3
Private Securities Total	12	6	2	2	2	2	2	2	2	2	2
Risk Client Services Total	165	83	27	26	25	24	24	22	20	18	17
Risk Selection Strategy Total	13	7	2	2	2	2	2	2	2	2	2
Treasury Risk Investment Ops Analytics &											
Data Total	14	7	2	2	2	2	2	2	2	2	2
Workplace Identity & Reliability eXperiences											
Total	1	1	0	0	0	0	0	0	0	0	0
Department & Division not listed in BIIP	137	69	23	22	22	21	21	19	18	17	16
TOTAL	3585	1810	Con597	468	434	405	381	320	280	251	227

RESEARCH SYNTHESIS & DELIVERY of OUTCOMES:

SYNTHESIS of USER STORIES:

Examine and categorize the following response outcomes from open-ended survey questions, interviews, and ethnographic research:

- Unexpected responses
- Responses that provide increased understanding of user need
- Responses that verify or refute hypotheses or result in new questions or hypotheses

DEVELOPMENT OF RESEARCH TAXONOMY:

Through affinity mapping and research review, complete the following:

- Tag research to identify related or common responses
- Create taxonomies based on departments, teams, user challenges, goals, product features, user persona, and more
- Develop relevant tags to observations that reference each observation with different research scenarios

POINT OF VIEW:

Development of user need statements based on:

- Demographic
- Technographic segmentation (tech savviness)
- Role / Department
- Effectiveness or pain points related to existing solutions

DEVELOPMENT OF USER ARCHETYPES

An archetype is a fictional representation of an audience group. User personas are reflective of the goals, needs, and challenges of the target audience(s).

These should include the following:

- Point of view from user need statements
- Behavior in specific scenarios
- Needs, Wants, Perceptions
- User quotes

DEVELOPMENT OF USER JOURNEYS:

Journeys should reflect the user workflows of the end user audience:

These should include the following:

- Project scope to focus on
- The user archetype experiencing that user journey
- Expectations and scenarios related to the user
- A list of touchpoints (points of product-user interaction) and the channels associated with them

RESEARCH SYNTHESIS & DELIVERY of OUTCOMES:

SERVICE BLUEPRINT:

Examine and categorize the following response outcomes from open-ended survey questions, interviews, and ethnographic research:

- Physical evidence- what users come in contact with
- Touchpoints the method(s) used to engage
- Frontstage or visible action.
- Backstage or invisible contact actions
- Support processes.
- User Scenarios

USABILITY/ANALYTICS REPORT :

The following synthesis should be documented:

- Usability issues identified
- Prioritization issues based on criticality and impact
- Testing recommendations around new designs and impact of feature modifications
- Testing outcomes an any implementation of a design change
- Metrics around success or failure
- Correlation reflective of Confidence vs. Error

ACCESSIBILITY CONSIDERATIONS:

All research outcomes should anticipate and consider the following accessibility considerations to maintain ADA compliancy:

- Review simplicity of interactions relative to what is familiar, consistent
- Review content and functionality according to whether interactions may be completed regardless of whether a user Designs should facilitate personalization and allow the user to determine how they prefer to navigate and interact with their device.
- All design considerations and content should be easier for users to see or hear through use of color, audio control, contrast, text resizing and spacing, image manipulation, content on hover or focus, etc.
- All design considerations and content should provide alternate ways in which a user can perform various actions and simple error recovery
- Functionality of design considerations should be operable through a keyboard interface without requiring specific timings for individual keystrokes.
- User navigation should allow for simple content discovery and the abilkity for a user to determine where they are by making navigation predictable, logical and consistent with platform standards.



APPENDIX

The Northwestern Mutual Life Insurance Company – Milwaukee, WI