AEM Solution Design Recommendations
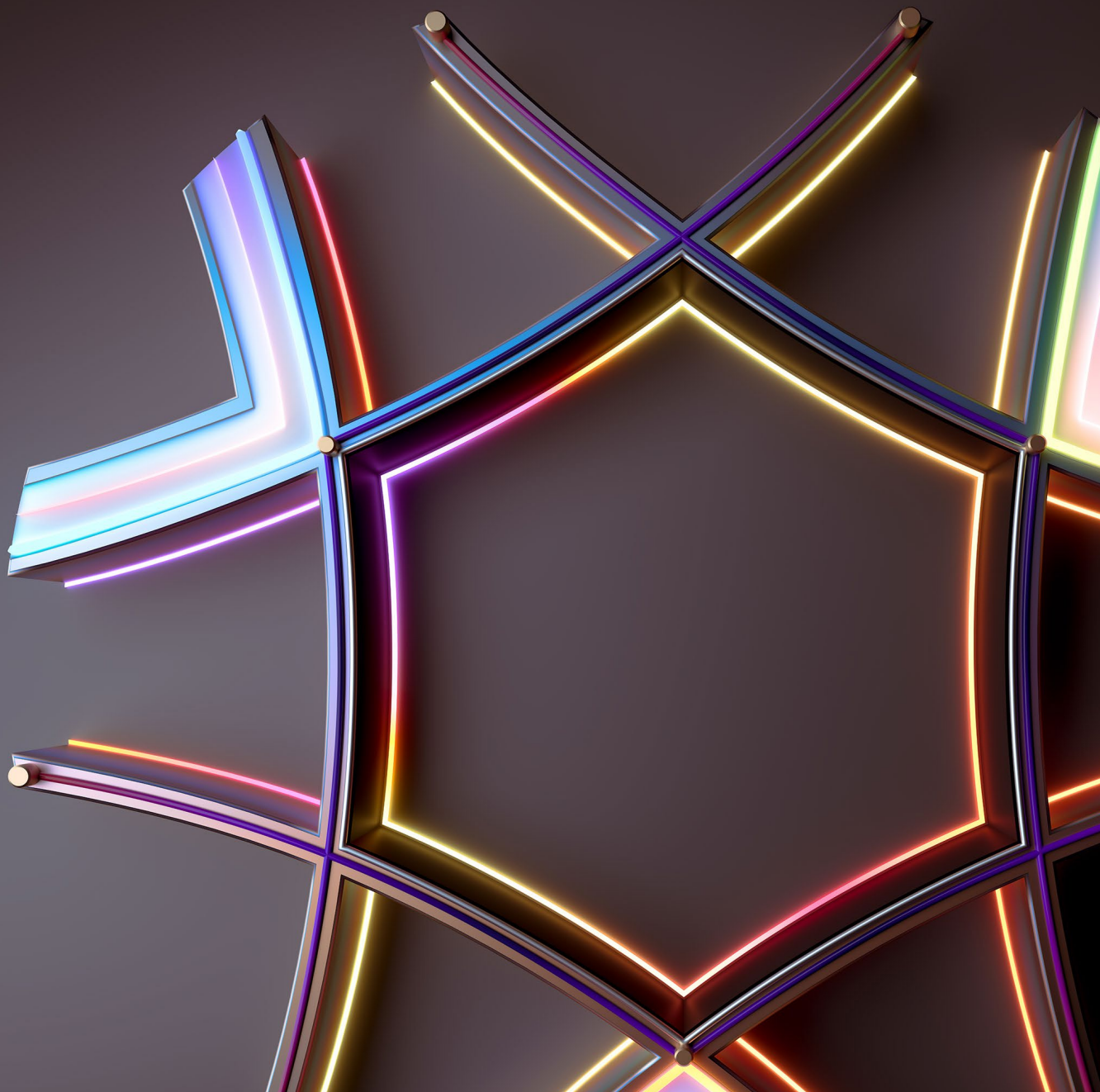
Launch Advisory Services

Document Title	AEM Solution Design Recommendations Launch Advisory Services
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Version Control

Version Number	Date	Author	Comments
1	15-10-2020	Anoop Rajan	Initial version created
2	26-10-2020	Anoop Rajan, Kamal Pant	Updated the recommendation priority and added comments based on the discussion with Infosys.

Purpose and summary

This document highlights the areas for improvement and accompanying expert recommendations by Adobe during the Define phase of the project.

Solution design review is conducted through a series of design workshops with implementation partner – Infosys. Adobe team does not have access to M1's AEM environment, hence no direct review or analysis was performed on the M1 platform.

Adobe Experience Manager
Premier Support Launch Advisory Services

SUMMARY

ISSUES/RISKS	PRIORITY		
	HIGH	MEDIUM	LOW
Content Architecture : Lack of MSM structure		1	
SEO Considerations : Page metadata	1		
Tag Taxonomy : Limited tags usage			1
Physical Architecture : Pre-prod environment setup	1		
Access Control Design : User group & permissions			1
Authentication Integration : SSO not enabled			1
E-Commerce Integration : Product catalog structure		1	
Custom Workflows : Design for catalog update process can be improved		1	
Maintenance Routine: Not clearly defined			1
Sites – Templates and Components : Structing and Naming convention		1	
Sites – Templates and Components : Header/Footer configurations		1	
Configuration Management : Template policies not properly defined		1	
Site Design Architecture: Client library structure is not proper	1		
Assets : Folder organization or taxonomy needs improvement		1	
Assets : Dynamic renditions of image should be used		1	
Development Practices: Git branching strategy could be simplified		1	
Development Practices: Sonar Quality profiles can be improved			1
Security Guidelines : AEM health checks are failing		1	
TOTAL ISSUES/RISKS = 18	3	10	5

RECOMMENDATIONS - DETAILS

The following recommendations for improvement were identified during the define phase and are in high, medium, and low priority order.

RECOMMENDATION 1	PRIORITY: MEDIUM
Checklist item	Content Architecture : Lack of MSM structure
Issue/risk if not addressed	Content structure is not having a language master structure or language roots, the current structure will not be able to support the multilingual sites in future
Recommendation(s)	AEM multi-site manager enables seamless management of content for multiple sites and enables multilingual and translations capabilities. https://docs.adobe.com/content/help/en/experience-manager-65/administering/introduction/msm.html To enable MSM capabilities, content architecture of the site should follow a defined structure. Some reference structure is provided in the below documentation. https://docs.adobe.com/content/help/en/experience-manager-65/administering/introduction/tc-prep.html We-retail reference implementation also follows the same guidelines and create language masters' structure. Individual country sites will be created as live copies of language master. https://docs.adobe.com/content/help/en/experience-manager-65/administering/introduction/tc-bp.html#site-structure For M1, we understand that there is no current requirement for multiple sites/languages. But still, we recommend creating a proper structure which can be easily extended to support multiple sites or languages in future.
Comments	

RECOMMENDATION 2	PRIORITY: HIGH
Checklist item	SEO Considerations – Page metadata
Issue/risk if not addressed	Page metadata or tagging is not considered for microsite. This can impact the SEO ranking of the pages
Recommendation(s)	AEM provides lot of capabilities to improve the SEO ranking of the pages, here are the some of the best practices recommended by Adobe. https://docs.adobe.com/content/help/en/experience-manager-65/managing/managing-further-reference/seo-and-url-management.html We recommend considering the following SEO aspects for M1 Microsite. • Page level meta tags, descriptions • URL considerations (refer above documentation) • Sitemap (this can be enabled easily leveraging the ACS sitemap features)

Comments	This is an action item mainly for M1. Content authors needs to create page metadata including proper SEO titles, descriptions, meta keywords for every page.

RECOMMENDATION 3	**PRIORITY: LOW**
Checklist item	Tag Taxonomy : Limited tags usage
Issue/risk if not addressed	Current M1 AEM platform is leveraging the AEM tags capability in very minimal way. This will limit the ability to organize content and searchability of pages and assets within AEM
Recommendation(s)	AEM Tags provides a quick and easy method of classifying content within a website. Tags also provide lot of additional capabilities as mentioned in the documentation below https://docs.adobe.com/content/help/en/experience-manager-65/authoring/siteandpage/tags.html we recommend M1 platform to set up basic tags for organizing and classifying content.
Comments	

RECOMMENDATION 4	**PRIORITY: HIGH**
Checklist item	Physical Architecture : Pre-prod environment setup
Issue/risk if not addressed	Current M1 pre-prod environment is not having the same architecture as the prod environment, in terms of number of publishers. This will limit the ability to perform proper functional and performance testing on the pre-prod environment
Recommendation(s)	Adobe recommends having 4 environments for AEM deployments: - Development - QA (SIT) - Staging (Pre-prod/UAT) - Production. Staging environment should be a mirror of production environment in terms of content, code, and configuration. https://docs.adobe.com/content/help/en/experience-manager-65/managing/managing-further-reference/enterprise-devops.html
Comments	This is an action item for M1 team. Infosys is also aligned with this recommendation and has raised this with M1 already.

RECOMMENDATION 5	**PRIORITY: LOW**
Checklist item	Access Control Design : User group & permissions
Issue/risk if not addressed	No access control design in the current environment, currently all users are logged in as admins to AEM.
Recommendation(s)	The implementation of user groups and access control lists will be an important part of the content architecture of the system. While developing these access

	controls, it is important to adhere to Experience Manager best practices, such as avoiding 'Deny' permissions whenever possible, and application of ACLs based on groups rather than individual users. It should be determined where out-of-the-box groups such as contributors, DAM users, authors, etc. will be used and where custom groups will need to be configured for users. https://docs.adobe.com/content/help/en/experience-manager-65/administering/security/security.html
Comments	The base content authoring groups are already established in AEM non prod and prod environment. However, user group and permissions still need to discuss and finalized by development team

RECOMMENDATION 6	PRIORITY: LOW
Checklist item	Authentication Integration : SSO not enabled
Issue/risk if not addressed	No SSO integration enabled for author. Marketers will have better experience if they can login to AEM author using LDAP credentials
Recommendation(s)	AEM provides easy to configure SSO set up. Leveraging this capability, AEM author environment could be integrated with enterprise LDAP, there by enabling easier and secure authentication to AEM author environment. This provides better experience to content authors and marketers. https://docs.adobe.com/content/help/en/experience-manager-65/deploying/configuring/single-sign-on.html
Comments	As per discussion with Infosys, this is already enabled in prod and non-prod environment. Please consider this as addressed.

RECOMMENDATION 7	PRIORITY: MEDIUM
Checklist item	E-Commerce Integration : Product catalog structure
Issue/risk if not addressed	Product catalog is created with in /etc/commerce node in AEM. This is not recommended by Adobe. Future releases of AEM will not be compatible with /etc structure, hence will face issues during AEM upgrade.
Recommendation(s)	With AEM6.4 onwards, content is being restructured out of /etc to other folders in the repository, along with guidelines on what content goes where, adhering to the following high-level rules: • AEM product code will always be placed in /libs, which must not be overwritten by custom code • Custom code should be placed in /apps, /content, and /conf As per this, product structure should be created under /var/commerce going forward. https://docs.adobe.com/content/help/en/experience-manager-65/deploying/restructuring/ecommerce-repository-restructuring-in-aem-6-5.html
Comments	

RECOMMENDATION 8	PRIORITY: MEDIUM
Checklist item	Custom Workflows : Design for catalog update process can be improved
Issue/risk if not addressed	Currently, custom workflows are created for product catalog updates. Workflows will add background jobs and data to AEM, hence will add more overhead to maintenance.
Recommendation(s)	For M1, Catalog update process is manual and will be added on demand. Hence, it is better to have a UI to trigger the catalog update process and have OSGi services to handle the catalog CRUD operations. This will be a much better design compared to workflows. Here is an example of how this is handled in the Adobe's commerce integration framework which integrates AEM with Magento or 3rd party commerce engines. https://www.adobe.io/apis/experiencecloud/commerce-integration-framework/getting-started.html (refer bind Magento products section: 9:47mins)
Comments	

RECOMMENDATION 9	PRIORITY: LOW
Checklist item	Maintenance Routine: Not clearly defined
Issue/risk if not addressed	Adobe recommends a list of maintenance tasks for AEM. Lack of maintenance causes instability, performance issues and disk space outages
Recommendation(s)	Maintenance tasks must be clearly defined in AEM runbook and performed as per the recommended schedules. List of tasks and recommended schedule is provided below. https://helpx.adobe.com/in/experience-manager/kb/AEM6-Maintenance-Guide.html
Comments	As per discussion with Infosys, all the maintenance tasks are already configured as per Adobe's recommendation. Hence lowering the priority to low.

RECOMMENDATION 10	PRIORITY: MEDIUM
Checklist item	Sites – Templates and Components : Structing and Naming convention
Issue/risk if not addressed	Structuring and naming convention of AEM editable templates are not as per the standards. Currently the template naming is not reflecting the purpose of the template, this could make the templates harder to find for content authors
Recommendation(s)	Please follow proper naming convention for templates. We can use we-retail site which is bundled with AEM as reference for naming the templates and component. Templates should have camelCase naming, it should have a thumbnail to reflect the layout. Component should also have camelCase naming, it should be grouped appropriately. https://docs.adobe.com/content/help/en/experience-manager-65/developing/bestpractices/we-retail/we-retail.html

Comments	

RECOMMENDATION 11	PRIORITY: MEDIUM
Checklist item	Sites – Templates and Components : Header/Footer configurations
Issue/risk if not addressed	Currently, header and footer are included statically in the templates. This limits the flexibility of editable templates. We cannot create a blank template or template with different header links with this approach as the header is included through code. This defeats the whole purpose of editable templates.
Recommendation(s)	Ideally, header and footer should be re-usable fragments or configurable components which can be included dynamically using template editor. This allows content admins to configure templates with layouts of their choice leveraging the template editor functionality.
Comments	As aligned with Infosys, Adobe agrees that header and footer requirements for current microsite is quite minimal and it does not require the creation of header/footer fragment. This could be a future requirement.

RECOMMENDATION 12	PRIORITY: MEDIUM
Checklist item	Configuration Management : Template policies not properly defined
Issue/risk if not addressed	Policies for the templates including allowed components, style specifications, ACLs, etc are currently manually managed through AEM sites console. Recommendations is to manage it through code (configuration policies)
Recommendation(s)	Configuration policies allows flexibility for managing templates through template editor for content admins. Configuration policies ideally could be used to define the following: • Allowed component groups/components • Component to asset mapping • Fav icons • Specific clientlibs association • Project specific component level properties/configurations https://docs.adobe.com/content/help/en/experience-manager-65/developing/platform/templates/page-templates-editable.html https://github.com/Adobe-Marketing-Cloud/aem-sample-we-retail/blob/master/ui.content/src/main/content/jcr_root/conf/we-retail/settings/wcm/policies/.content.xml
Comments	

RECOMMENDATION 13	PRIORITY: HIGH
Checklist item	Site Design Architecture: Client library structure is not proper
Issue/risk if not addressed	Currently, the individual component specific client libraries are getting loaded, this could impact performance of the site.
Recommendation(s)	Adobe recommends consolidating all the component libraries into a global client library and load the CSS library on top and JS on the bottom of page. There should be a single call for 3rd party library libraries. Following guidelines should be followed for client libraries: • Linking to dependencies • Configure client library handling • Pre-processer and minifiecation settings. More details can be found here: https://docs.adobe.com/content/help/en/experience-manager-65/developing/introduction/clientlibs.html
Comments	

RECOMMENDATION 14	PRIORITY: MEDIUM
Checklist item	Assets : Folder organization or taxonomy needs improvement
Issue/risk if not addressed	Currently, the parent folder hosts all the images/assets for the microsite. This is not scalable and will be quite difficult to manage for authors in future.
Recommendation(s)	Adobe recommends a proper asset folder structure to organize and manage the assets. Please refer the below documentation for guidelines on how to organize the assets. https://docs.adobe.com/content/help/en/experience-manager-65/assets/managing/organize-assets.html
Comments	As per discussion with Infosys, we understand that only few folders are not organized properly, and this will be addressed shortly. Hence lowering the priority from high to medium.

RECOMMENDATION 15	PRIORITY: MEDIUM
Checklist item	Assets : Dynamic renditions of image should be used
Issue/risk if not addressed	Currently, M1 AEM platform leverages static renditions of images created using DAM asset update workflow. This increases the storage of assets and is not scalable for future UI requirements/specifications.
Recommendation(s)	It will be preferred to generate dynamic renditions using Dynamic Media capabilities or through Adaptive image servlet provided by core components. This will allow dynamic renditions and will not increase the size of repository.

	Details of the adaptive image servlet can be found here and is supported through Core Component library – image component. https://github.com/adobe/aem-core-wcm-components/wiki/The-Adaptive-Image-Servlet https://docs.adobe.com/content/help/en/experience-manager-core-components/using/components/image.html Dynamic media also provides dynamic rendition and has much more capabilities. However, this requires the use of dynamic media component provided OOTB or develop custom image component which can use the dynamic media hosted urls.
Comments	

RECOMMENDATION 16	PRIORITY: MEDIUM
Checklist item	Development Practices: Git branching strategy could be simplified
Issue/risk if not addressed	Current git branching structure is quite complex to account for various sprint related development. However, this could be simplified using the standard git branching strategies.
Recommendation(s)	There are several key successful git strategies published and proved already. Please refer the below article for one such proven git branching approach. http://nvie.com/posts/a-successful-git-branching-model/. One of the key points to note here, is that there is a single master which acts as single source of truth for production ready code. In the case of M1, there are multiple master specific to the environments and sprint cycle. This could make the deployment a bit more tedious. Standard git branching structure, as the one proposed above, supports parallel development and multiple environment deployment.
Comments	After discussion with development team, we understand that this model has been established to support parallel development for teams. So, the agreement is to continue with this approach till we go live. But once application is in live, its recommended to simplify the structure.

RECOMMENDATION 17	PRIORITY: LOW
Checklist item	Development Practices: Sonar Quality profiles can be improved
Issue/risk if not addressed	Current sonar profiles are taking care of java code checks. These rules can be extended for UI and AEM specific quality checks.
Recommendation(s)	AEM cloud manager incorporates the following custom rules, as per the guidelines provided by product engineering. We recommend that M1 could

	incorporate these rules in the sonar quality gate to further enhance the code quality analysis. https://docs.adobe.com/content/help/en/experience-manager-cloud-manager/using/how-to-use/custom-code-quality-rules.html

RECOMMENDATION 18		PRIORITY: MEDIUM
Checklist item	Security Guidelines : AEM health checks are failing	
• Issue/risk if not addressed	Following AEM healthchecks are failing in the SIT environment for M1. • Replication Transport users' credentials • Https SSL issue • Sling referrer This needs to be fixed in pre-prod and prod environments.	
Recommendation(s)	It is recommended to ensure all the steps mentioned in the below checklist is followed for AEM production and non-production environments. https://docs.adobe.com/content/help/en/experience-manager-65/administering/security/security-checklist.html	

RECOMMENDATIONS – IMPACT AND EFFORT SUMMARY

Here is another view of recommendations from an M1 perspective, this report indicates the impact to go live and effort involved to incorporate the recommendation along with priority.

- **Priority**: Severity of the issue based on AEM platform design and maintainability perspective.

- **Impact**: Is this impacting the upcoming supernova launch of M1?

- **Effort**: Effort required to incorporate the recommendation.

ISSUES/RISKS	PRIORITY	IMPACT	EFFORT
Content Architecture : Lack of MSM structure	MEDIUM	YES	LOW
SEO Considerations : Page metadata	HIGH	YES	MEDIUM
Tag Taxonomy : Limited tags usage	LOW	NO	MEDIUM
Physical Architecture : Pre-prod environment setup	HIGH	YES	HIGH
Access Control Design : User group & permissions	LOW	NO	LOW
Authentication Integration : SSO not enabled	LOW	NO	LOW
E-Commerce Integration : Product catalog structure	MEDIUM	NO	LOW
Custom Workflows : Design for catalog update process can be improved	MEDIUM	NO	HIGH
Maintenance Routine: Not clearly defined	LOW	YES	LOW
Sites – Templates and Components : Structing and Naming convention	MEDIUM	YES	LOW
Sites – Templates and Components : Header/Footer configurations	MEDIUM	NO	MEDIUM
Configuration Management : Template policies not properly defined	MEDIUM	NO	MEDIUM
Site Design Architecture: Client library structure is not proper	HIGH	YES	MEDIUM
Assets : Folder organization or taxonomy needs improvement	MEDIUM	YES	LOW
Assets : Dynamic renditions of image should be used	MEDIUM	YES	MEDIUM
Development Practices: Git branching strategy could be simplified	MEDIUM	NO	HIGH
Development Practices: Sonar Quality profiles can be improved	LOW	NO	MEDIUM
Security Guidelines : AEM health checks are failing	MEDIUM	YES	LOW

This table should help M1 and Infosys to plan for incorporating the recommendations.

- All those recommendations marked with high priority and impacting go-live should be incorporated asap.
- All those recommendations marked with medium priority, has go live impact and low efforts can be addressed easily and should be considered next.