

**NRK MA3624-23E - MAM SYSTEM IN
NRK (RFI)**

**MEDIA ASSET
MANAGEMENT SYSTEM IN
NRK**

INVITATION TO PARTICIPATE IN A TECHNICAL
MARKET DIALOGUE

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1. Introduction

Norwegian Broadcasting Corporation AS, subsequently named NRK, has initiated this Request for Information (RFI) phase, that will potentially be followed by Request for Proposal (RFP) process with the intention of replacing the current Media Asset Management system. Technology is moving faster than ever before, and NRK is aiming to take advantage of the technological changes to improve scalability, security, flexibility and performance.

Our current Media Asset Management system (MAM) was implemented from 2017 to 2019 in 17 local and regional sites as well as the headquarters in Oslo. The MAM system is a vital part of NRKs “Programbank” responsible for archiving, production and publishing video to traditional linear channels as well as OTT platform [NRK TV](#) and online service [nrk.no](#).

In this RFI we have highlighted areas of particular interest (Chapter 3) that we would like you to respond to.

1.1 About NRK

NRK is Norway’s biggest media house. The broadcaster is state-owned, and the Parliament (Stortinget) has given the mandate and the owner-role to the Ministry of Culture. NRK has been given a special mandate to be a non-commercial, politically independent public broadcaster.

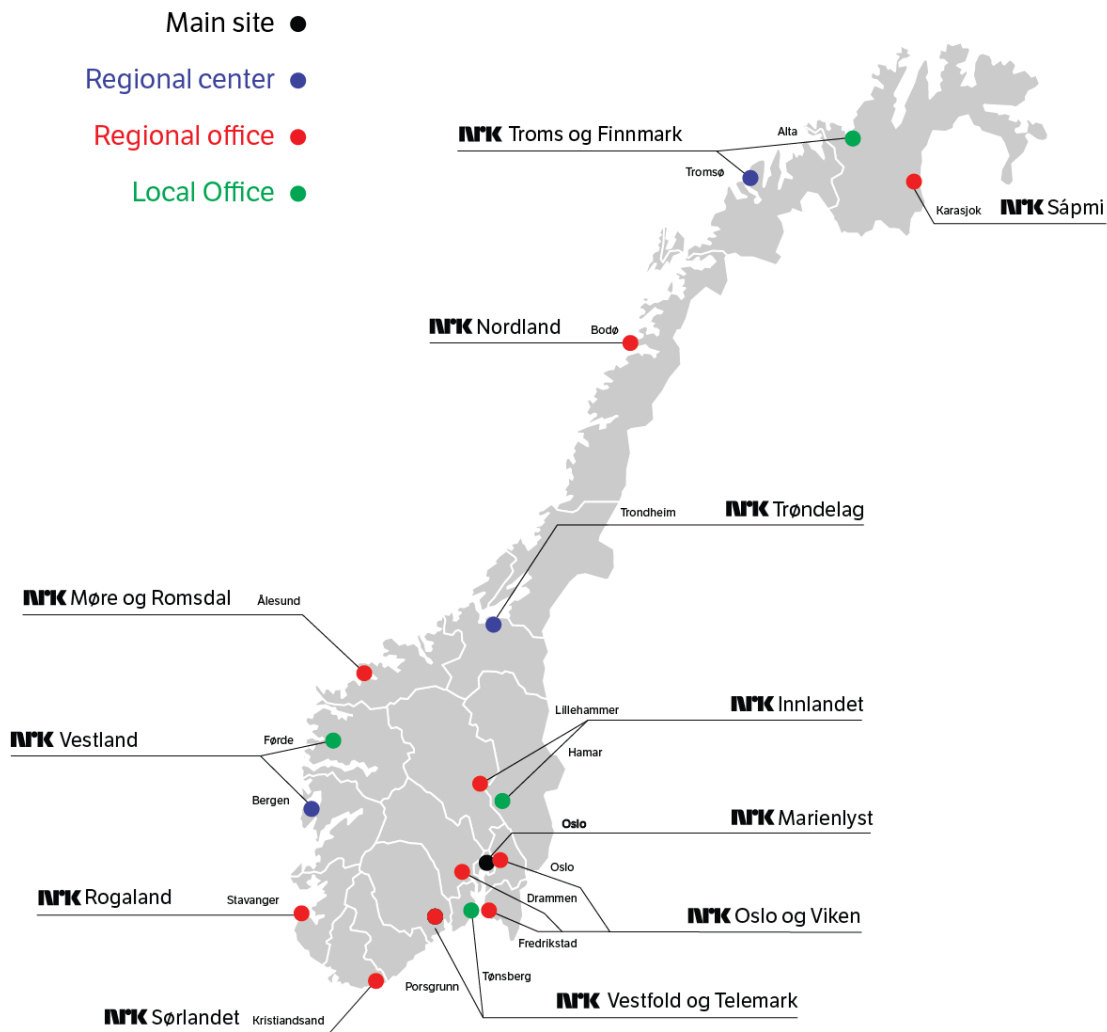
Around 3 400 employees situated in around 50 departments throughout Norway work for NRK. The main office is located at Marienlyst in Oslo, with larger regional centers in Tromsø, Trondheim and Bergen.

Guided by its public service remit, NRK does not serve any commercial or political interests, and provides strictly non-commercial programming, with no advertising apart from the sponsorship of some cultural and sporting events.

On any average day in 2019, 89% of the population in Norway used one or more of NRK's services on television, radio, web or mobile.

1.2 Current situation and setup

NRK has approximately 1000 daily internal users of the MAM system, located at 17 regional offices and the headquarters in Oslo that daily ingests thousands of clips as well as hundreds of hours of live recordings. Users will ingest a wide variety of raw material ranging from short clips from mobile phones to batch ingesting full memory cards for large scale UHD productions.



1.2.1 Workflows and file transfer

The MAM system is an essential part of the workflow and follows the lifecycle of the video assets, from ingest to when the assets have been deleted or archived. The MAM services will probe the files for the technical metadata like resolution and video format and create lower quality proxies.

The MAM infrastructure has a large on-premises footprint consisting of local databases, local storage, and local video processing units both at the headquarters and in all the regional sites. With the current infrastructure, the high-resolution media needs to be stored close to where the users are located for editing and publishing. Thus, if a user in site A wants to use material from site B in a sequence in Premiere, the user will have to transfer the material to their location.

1.2.2 SQ integration

The MAM is responsible for the integration of Grass Valley sQ system (previously called Quantel), which is the main editing and playback tool for news production in the head office. The integration consists of two-way synchronization with sQ – if a user creates or modifies a clip in sQ, the MAM will register and index the clip or change. The MAM also triggers transfers to or from sQ, as well as handle the automated housekeeping – clips will be deleted after set number of days. This date can be overridden by users.

The Grass Valley sQ system has an end of life in 2027. News workflows and the sQ system are tightly coupled, and deprecating the sQ system will have a considerable impact on the daily workflows of NRKs news journalists and producers.

1.2.3 ENPS, MOS integration and placeholders

The MAM has an extensive integration with the newsroom production system ENPS over the MOS protocol. Users can create placeholders in the MAM from the ENPS user interface. These placeholders will get MOS item references in the relevant ENPS scripts. The placeholders will then be accessible for publishing in either Adobe Premiere Pro, or in the sQ editing software, Rio. If the placeholder is present in multiple rundowns and in multiple sites, the MAM will trigger a transfer to the appropriate site and system once the placeholder is used. The MAM will update the newsroom system on status changes, durations etc. Users can also drag and drop entries from the rundowns between sites, and the MAM will handle the workflows and file transfer between the sites.

Placeholders can also be created using our Media Business Management Platform, Whats'On. The appropriate workflows are triggered once the placeholders are used, like transcoding for web or transferring to the playout servers.

1.2.4 Live ingest

The current tool used for ingesting and capturing live video is a part of the MAM and tightly integrated. Capture Manager allows users to set up recording schedules and to do on-demand recordings. Capture Manager integrates with Grass Valley sQ and Harmonic Spectrum video servers and will trigger workflows as soon as a recording starts, making the video accessible for editing while the recording is still ongoing.

1.2.5 Housekeeping and tape storage

Video assets and files are housekept and deleted automatically on-demand by the MAM. Files are only deleted when the storage is required based on set quotas. If a site has a quota of 50 TB, the MAM will always try to use the full quota. If a file of 500 GB is ingested, the MAM will delete 500 GB of assets to make space for the new file. To avoid deleting assets, we have a so called “best before” concept; all assets get a timestamp a set number of days after the asset has been created, and the MAM will never

delete a file before this date is reached. This date can be changed by the users. In theory, this allows us to always use the storage as efficiently as possible, but in practice this has proven difficult to fine tune.

The assets that need to be retained will be archived and sent to the tape storage solution, Telestream DIVA, where the MAM handles the two-way integration of reading and writing to the tape storage.

1.2.6 NRK's applications and integrations

NRK has built an abstraction layer and a modern web-based frontend application called Potion on top of the MAM system that allows NRK to fully own system integrations and user facing applications. Potion consists of a suite of applications for ingest, capture and publish of live web streams, a video content search engine, and the Metadatabank where descriptive metadata is stored. Potion is embedded as separate UI-panels in our main video editing tool; Adobe Premiere Pro, as well as in Rio and ENPS. Our integration relies on HTML, CSS, JavaScript and REST APIs, in a Chromium based UI.

NRK has also built an in-house media analysis and media encoding system called Mediakvern based on FFMpeg. Mediakvern's main purpose is to convert video files for distribution to NRKs streaming services.

2. Scope

NRK is in the process of relocating its head office in Oslo. The aim is to relocate in Oslo within 5-7 years. During this period NRK is also moving several local/regional offices, including Trondheim. In preparation for the move, NRK will have to work on future production, technical and workflow capabilities. A major change will be the shift to AVoIP technology.

NRK is seeking to leverage new technology to transition from dedicated audio and video infrastructure to a more IT-like media infrastructure, utilising general purpose, commercial off the shelf (COTS) network hardware for data transport as well as software applications running on COTS server hardware. NRK's infrastructure is to be built within external datacentres; applications and workloads will be hosted by public cloud providers where appropriate.

NRK believes that this shift could lead to a more efficient use of resources and storage. We want to explore the options of moving the storage from some of the regional sites to the datacentres, leveraging AVoIP, virtualized and proxy editing.

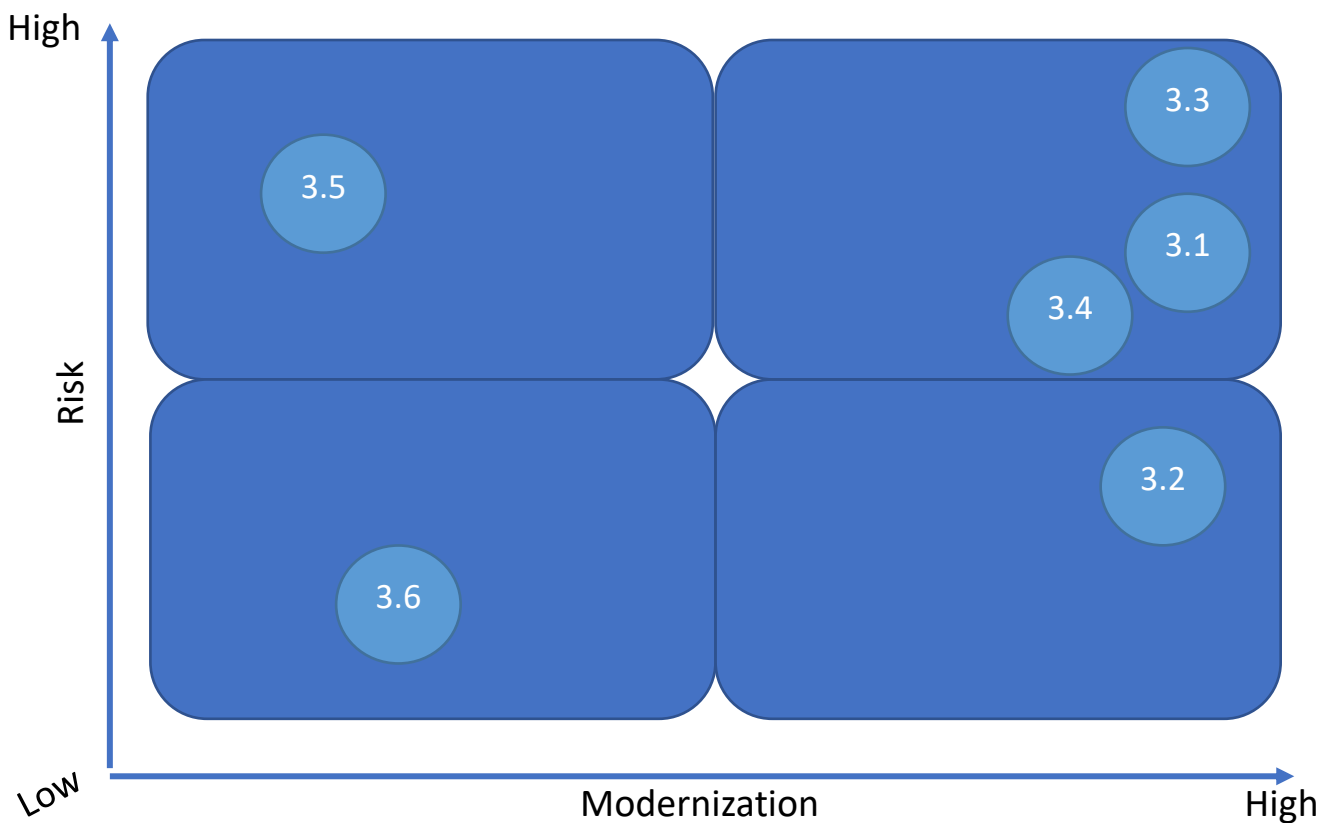
Owning the user experience and the metadata has been a key factor for the Proqrambank in NRK. Potion will be kept as the front-end application, and the Metadata bank for handling and storing the descriptive metadata. Rich APIs are a prerequisite for good integration possibilities and a strong requirement for a future solution.

NRK wants to open a dialogue with suppliers that have relevant experience related to Media Asset Management services. We may also consider, if appropriate, a modular approach where modules can be provided by one or different vendors. The suppliers should be interested in taking part in the potential subsequent procurement process, and thus be willing to share their knowledge and provide us with pricing information about their system. As mentioned earlier, NRK has a complex environment with

many integrations. We are not only looking for a supplier, but also an agile partner with whom we can find good, future-proof solutions together.

3. Area of particular interest

The following list defines the areas we particularly want to be able to increase our understanding and insight into. We have mapped the areas of interests in relation to the need for modernization and the risk associated with each area. This is intended to help highlight the importance of the various areas. This list could also be the basis of a dialogue during 1:1-meetings.



3.1 Datacentre strategy and sustainability

NRK is considering a solution where we have most of our infrastructure and storage in two centralized and mirrored datacentres. Some of the offices will have local storage and server rooms, while most offices might not have any storage or server space at all. Options like virtualized editing, AVoIP and proxy editing are being investigated.

- a) Can you share your experience in regard to remote editing and centralized infrastructure?
- b) Describe how your MAM system can be implemented on either on-prem or a hybrid cloud infrastructure and why is your solution optimal from a pricing and scaling perspective?
- c) Storage is a major cost driver; please describe how your products can reduce storage costs by performing intelligent and customizable housekeeping and archiving.
- d) Our current MAM is only used for video assets. We would like to know whether there are suitable solutions on the market that are format agnostic, regardless of whether the format is audio, image, or video.
- e) Please describe your strategy for sustainability, such as reducing the carbon footprint of your system.

3.2 Integration and API

A key factor in the Proqrambank project have been to (co)develop and own the integration layer in-house rather than asking the involved vendors to deliver a bespoke integration on their own.

- a) Please explain how your MAM system offers well-defined, documented APIs with a high degree of functionality.

3.3 News production, ENPS and MOS integration

News production is one of the main objectives for NRK as a public broadcaster. Technology should provide the journalists and producers with user-friendly tools and quick workflows that allow them to rapidly respond to news events.

- a) We would like to explore alternatives to the sQ system that provides the users the ability to easily edit and publish from growing files. How does your system solve this?
- b) Please describe how your system integrates with newsroom production systems, such as ENPS or other equivalent systems. If relevant, please explain to what extent and at which level you support the MOS-protocol.
- c) What are your thoughts on doing this kind of integration outside the MOS-protocol i.e., using modern APIs?

3.4 Live ingest

NRKs system for live recording of videos is tightly integrated with our MAM system and with video servers from Grass Valley and Harmonic. The future of AVoIP production will enable new opportunities and reduce the need for specialized physical hardware.

- a) Do you offer a system that supports recording and ingest of live video streams over SMPTE 2110? If yes, please describe your solution.
- b) If not, do you provide integration with other vendors and products offering live ingest?

3.5 Security

NRK is prioritizing security of third-party vendors and software due to increasing risks from supply-chain attacks.

- a. Which valid security related ISO-certifications do you have?
- b. How do you ensure integrity of the software development process and releases?
- c. Have you implemented any standards for transparently keeping track of third-party software and libraries included, i.e., Software Bill of Materials?

3.6 AI technology

The media industry is adopting AI-technology to automate processes and workflows previously handled manually.

- a) Please describe how AI-technology could be leveraged with your products.

3.7 Reliability, availability, serviceability and pricing models

- a) Describe the reliability, availability and serviceability features of your system.
- b) Service Level Agreements (SLA) – which alternatives and structures can we expect?
- c) Pricing models - which alternatives and structures can we expect?
- d) What are the major cost drivers associated with your system?
- e) Could you please provide ballpark cost estimates of key element?

3.8 Company experience

- a) Please describe some relevant customer reference cases from the Media Asset Management industry using your system taking NRKs size and complexity into consideration.

Is there anything else that NRK should know or be aware of that has not been covered by the questions above?

4. Execution of technical market dialogue

NRK will perform technical market dialogue as follows:

- The suppliers may request a one-to-one meeting with NRK between 14-25th of August. Since there are limited time-slots available for these meetings, interested suppliers should send us a meeting request as soon as possible and no later than 26th of June. This request should include

an explanation of why you will be relevant and what you would like to cover in the meeting. Timeslots and way of booking will be posted on the Mercell portal. Further questions could be made in the Mercell portal or to Stian Fjellestad stian.fjellestad@nrk.no.

- Suppliers can submit a written response. NRK will not introduce any restrictions on how you reply to our request. However, please make clear references to our paragraph numbering. To limit the amount of information received we would like to ask you to limit your response to between 5 and 15 pages. Please remember that this is still part of the RFI process, and your submitted information will not be considered as binding in any way.

With the use of this technical market dialogue, NRK will aim to fulfil the basic requirements of equal treatment set out in the laws and regulations governing public procurement, so it prevents that any supplier is given a specific competitive advantage by:

- Biasing the requirements used in the tender documents to its advantage.
- Influencing the structure of the tender documents to its advantage.
- Achieve greater insight about the actual conditions.
- Achieve a greater understanding of customer requirements than competitors.

In summary, NRK seeks to avoid giving information or use the information received in a way that provides some competitive advantage. To counteract such imbalance, we will try to provide an edited resumé of our learnings and information to all suppliers.

Suppliers who are prevented from participating in this market dialogue could therefore expect to receive the necessary information in the following competition and procurement procedure.

4.1 Timetable

The procurement process is scheduled to be completed after the tentative and overall milestone schedule as given in the table below.

Activity	Date
Announcement of RFI	May 16 th 2023
Deadline for delivering written response	June 25 th 2023
1:1 dialogue with suppliers	August 14 th – August 25 th

5. Administrative provisions

5.1 Announcement

The announcement of the Procurement process will be conducted separately after the completion of technical marketing dialogue. C.f. schedule in section [4.1](#).

5.2 Areas of communication concerning the RFI

This RFI process is managed through email with the point of contact listed below, in addition to individual online meetings, where the outcome of our learnings will be summarized for later stages in a potential RFP. Always include the NRK case number NRK-MA3624-23E in the subject field of e-mail communications.

Any questions regarding the RFI process should be addressed through email.

Point of contact:

Stian Fjellestad - stian.fjellestad@nrk.no

Eirik Rasdal – eirik.rasdal@nrk.no

5.3 Confirmation of participation and communication

Participants are asked to confirm if they agree to meet with NRK. This is done by sending an email to the point of contact. – listing: name, position / function and company of those who will participate.

5.4 Cost of participation

At this stage, suppliers participate and prepare dialogue at their own expense and risk. NRK does not undertake any financial responsibility for the invested effort or other costs in relation with the preparation of participation in the competition as such.

5.5 Cancellation of the market dialogue and procurement process

NRK reserves the right to cancel any part of this procurement process if there are objective reasons for this.