9 August 2021
Information Management

DADI eAF Project Q&A

Digital Application Dataset Integration (DADI) Project Question and Answers

Version 2

Disclaimer

This Question and Answer (Q&A) document is for information only and is based on insights available at the time of its release. The aim is to regularly update and rerelease this document. Nothing in this document should be taken as an explicit commitment on behalf of the EMA or the DADI project Team.

For convenience many technical terms are explained in the answers. In addition, there is a table of abbreviations at the back of this document.

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1. What will the DADI project deliver?

- The Digital Application Dataset Integration (DADI) Project will replace current PDF-based electronic application forms (eAFs) with new web-forms in a new eAF portal.
- The web-forms will support both centrally authorised product (CAP) applications and nationally authorised product (NAP) applications.
- The project will replace forms used for key EU procedures, including the centralised procedure (CP), mutual recognition procedure (MRP), decentralised procedure (DCP), national procedures (NP) and, for veterinary, also subsequent recognition procedure (SRP). Additional procedures will be considered.
- During 2022 and 2023 the eAFs for variations and initial marketing authorisation will be replaced for human and veterinary medicinal products. In addition, the renewals (for human medicinal products only) eAF will be replaced.
- The new web-forms will standardise input for eAFs in order to effectively provide standard product master data for human and veterinary medicinal products.
- The web-forms will enable both the familiar human-readable (PDF) output and a new machine-readable output for digital processing based on the FHIR data exchange standard for medicinal products.
- The web-forms will also use available product master data from Product Management Services (PMS) for human and the Union Product Database (UPD) for veterinary medicinal products to prepopulate form fields where relevant.
- The DADI project will not change the process to apply for or submit the Marketing authorisation applications.
- The DADI project will not change the format of the current PDF output
- The DADI project will not the content of the of the output form included in the application, changes to which are not governed by the project team.

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2. What are the main benefits that DADI web-forms will bring?

- DADI web-based forms are a means to enable more efficient application processing, reducing administrative burden.
- For example, the forms will support validation of applications by competent authorities, reducing errors and discrepancies.
- The forms will facilitate "first-time-right" data is fed into databases making interoperability of systems and sharing of data between competent authorities much easier
- In addition, the new forms replace aging technology that was no longer fit for purpose.

- The technology used for the web-based forms themselves will enable progressive usability improvements for users over the current PDF input forms.
- For example, upon release the new forms will help applicants' form filling by using available PMS/UPD data to prepopulate form fields where relevant.
- The use of master data will for instance also mean that drop down lists in the form will have few to now duplicate or similar entries, reducing their length and making them easier and quicker to use.
- User-friendliness will improve over time as all the standardised Product and Substance Management Service databases become available, for example substances drop down lists will take much shorter time to load and will have less duplicate or confusing entries

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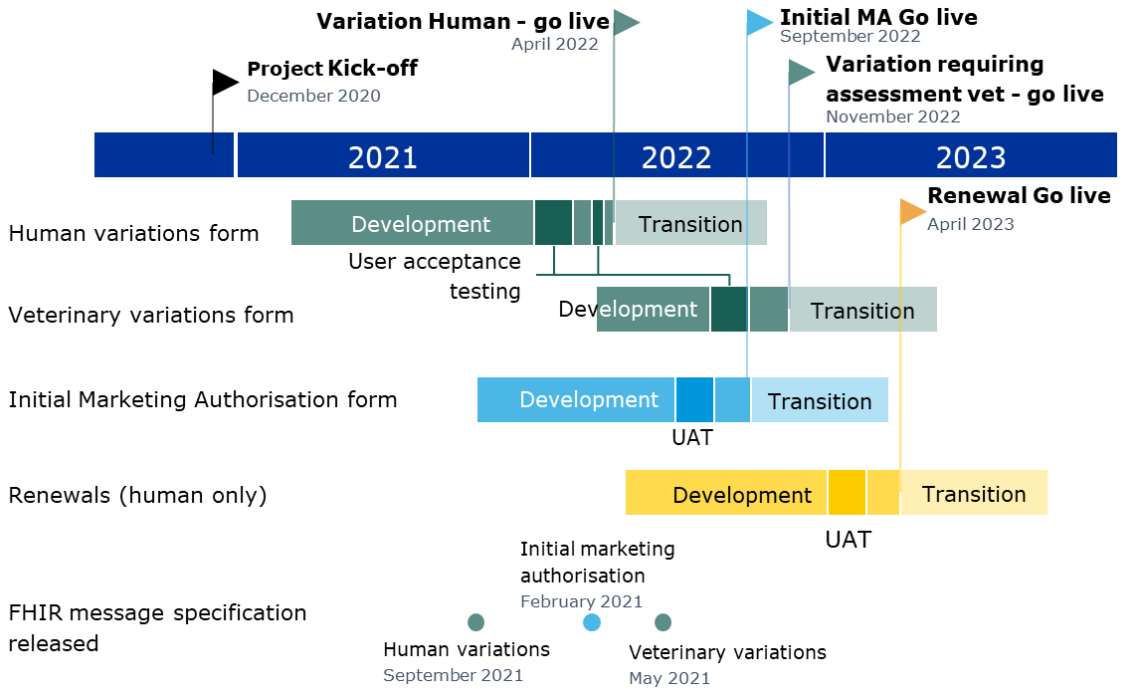
3. What is the timeline for DADI deliverables?

- Diagram 1 (below) shows the timeline for variations, initial marketing authorisation and renewals web-forms development and release.

Diagram 1 – DADI Project Timeline (version August 2021)



- The DADI project team is currently working on the variations form for human medicinal products, targeting a release for late April 2022. Variations for veterinary medicinal products will be released in November 2022 – the green bars in Diagram 1 above.

- Specific milestones have been added for the release of the initial Fast Healthcare Interoperability Resources (FHIR) message **specification** for each form:
    - September 2021 for human medicinal product variation applications;
    - February 2022 for human and veterinary medicinal product initial marketing authorisation applications;
    - May 2022 for veterinary medicinal product variation applications.

  This is generally six months before the release of the form for that procedure
- The blue bars cover work on the initial marketing authorisation form, release expected Q3 2022. The intention is to release this form for human and veterinary medicinal products simultaneously.
- The orange bars refer to work on the renewal form, release expected Q2 2023. The renewal form is only for human medicinal products however discussions are ongoing on the need for veterinary renewal form in line with legislation.
- There will be maintenance release windows every three months, not mapped in Diagram 1, to publish updates to forms after their initial release. Updates can include content updates in response to regulatory changes, corrections, technical fixes or new features.
- Explanation of the terms used in Diagram 1:
    - Development – refers to requirements gathering for and development of the web-forms and the underlying FHIR message.
    - User acceptance testing (UAT) - covers testing of the forms and data handling. In the case of the variations form, internal, data and external testing as detailed in question 3 below.
    - Transition is the period after release of the form when a form is released. During the transition, use of the new web-form is strongly encouraged while use of the old PDF input form is still accepted. After the transition, only the web-form will be accepted.
    - The FHIR message specification refers to the point when the points when these will be released in advance of the full form.

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4. Why is the DADI project being started now?

- Work on replacing the electronic application forms with forms that would support efficiency and better interoperability was first undertaken as part of the Common European Single Submission Portal (CESSP) Phase 1 project started in 2016 and ended in 2020.
- The need to replace the forms has only increased since then as the current Adobe PDF input forms are aging, and risk no longer being fit for purpose.
- Momentum, relevant expertise and know-how built up during the CESSP Phase 1 project is now there to be capitalised on by DADI. That is also the case with expertise on the technology chosen for the new web-forms which is the same as the IRIS Portal.

- Improvement of EMA's core processes is dependent on delivery of new forms facilitating standardised data entry for CAP applications. The data captured in forms are the entry point for data used throughout EMA's own core processes which are a key area for improvement over the coming months and years.
- In addition seven NCAs members of European medicines regulatory network have obtained European Commission (EC) Horizon2020 funding to implement ISO IDMP compatible application forms: AGES (Austria), BfArM (Germany), AEMPS (Spain), HPRA (Ireland), MEB-CBG (the Netherlands), NOMA (Norway) and SE MPA (Sweden).
- The Up-scaling the global univocal identification of medicines (UNICOM) project of which these NCAs are part, adopted the commitment to the Commission to implement ISO IDMP at EU and NCA level by 2023. UNICOM is partnering with the DADI team to realise this objective.

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5. Which application forms will be replaced by the DADI project?

- The aim is for all forms will be adapted, starting with the variations form in March 2022 for human and November 2022 for veterinary medicinal products. The marketing authorisation for both human and veterinary medicinal products is targeted to be replaced by September 2022 and the renewal form (human only) in 2023, with other forms to follow.
- As a separate action not in DADI's scope the current PDF-file based eAF for veterinary applications will be updated to meet requirements the Veterinary Medicines Regulation (Regulation (EU) 2019/6) on time for the regulatory deadline of January 2022. These forms will then subsequently be replaced by web-forms later in 2022 as described above.

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6. How is DADI taking stakeholder perspectives into account?

- The DADI project has established a Requirements Group represents subject matter experts from EMA, NCAs and Industry.
- The Requirements Group meets on a weekly basis and provides expert insight into the use of forms and provides input for EMA requirements for CAPs and NCA requirements for NAPs.
- The Requirements Group will also be involved in testing of the forms.
- Product ownership of the web-forms is shared between EMA and NCAs which means requirements gathering and design is done collaboratively between EMA and the network.

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7. Will there be User Acceptance Testing for the DADI deliverables?

- User Acceptance Testing (UAT) is the testing of the form by users to verify the requirements have been met.
- The UAT approach for the variations web-form for human has three steps:
  - Internal testing;
  - Data testing;
  - External testing.
- Internal testing tests the functionality of the form with mock data. Testing will be performed by EMA staff, and s selection of volunteers from the DADI Requirements Group in November 2021.
- The Requirements Group comprise of subject matter experts from EMA, NCAs and industry and represent those stakeholder groups.
- Data testing tests the successful migration of the product data to PMS. This is not in scope for DADI, however it is a critical dependency. This will be a closed test and is planned to take place in Q4 between internal testing (above) and external testing (below). Further updates on data testing will be provided by October 2021.
- External testing will test the form's functionality and PMS data together. External testing is planned for January and February 2022 with retesting March/April 2022. The aim is to facilitate testing by a wider group of stakeholders. Further details about the external UAT will be shared in October 2021.
- In addition to testing the project team will demonstrate the new forms in one or more webinar closer to their release dates.

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8. How will the project impact Competent Authorities?

- The web-based application forms will be common for both NAPs as well as CAPs which are processed by NCAs and EMA respectively;
- The forms impacted are used in NCA relevant authorisation procedures:
  - mutual recognition procedure (MRP)
  - decentralised procedure (DCP)
  - national procedure (NP)
  - Subsequent recognition procedure (SRP) for veterinary.
- The web-based forms create opportunities to automate manual processes related to processing forms and facilitate the collection standardised data.
- Competent authorities who are not currently using the PDF forms' XML functionalities will notice little change – the PDF output of the web-based form may look a little different.
- Competent authorities currently using the PDF forms' XML functionalities will need to adjust their systems to accommodate the new FHIR compliant XML.

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9. How will the project impact industry stakeholders?

- The current PDF-file based input form will be replaced by a web-based input form for CAPS and NAPS applications.
- Any new web-based application form will be prepopulated with available PMS/UPD data. Industry will have full visibility of data available on the regulator's side.
- The forms will support the collection and use of standardised PMS/UPD product master data. The forms are a key component for the target operating model designed for regulators and industry to reap the benefits of PMS/UPD in the future.
- DADI is currently developing the variations form. Once this moves to testing and later, release and implementation a more detailed breakdown of possible impacts for industry will be made available.
- The aim is to eventually integrate eAF and Data submission on authorised medicines (Article 57) submissions into a single process – the Product Management Service Target Operating Model. This will facilitate greater efficiency, and better data quality overall. This will not be part of the initial releases of the forms.

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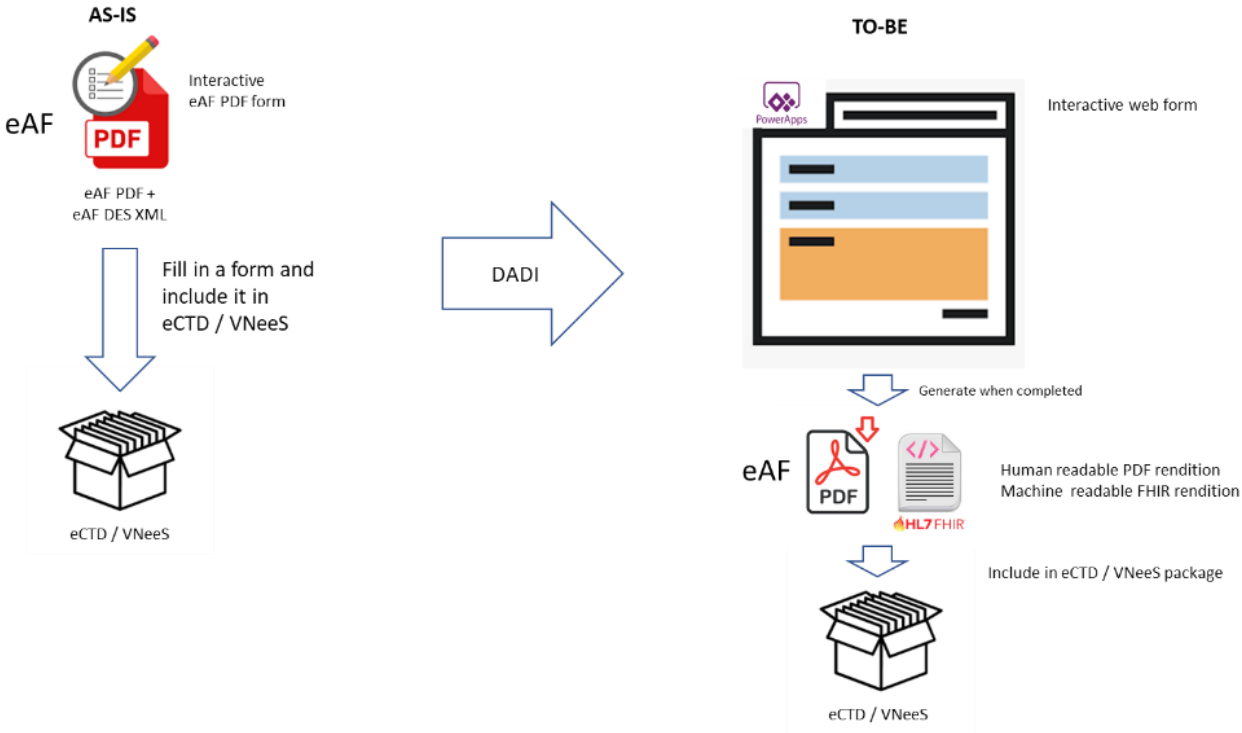
10. What will change technically in the forms?

- Applicants will fill out a web-based form instead of an interactive PDF form.
- The output, which the regulators will receive as part of the submission package, will include both the familiar human readable PDF document and an attached FHIR message which can be read and processed by IT systems.
- This Q&A will be updated as further details on the technical aspects of the form are decided.
- See the diagram 2 below for a visual description of technical changes:

Diagram 2 – Current situation vs future situation for eAFs



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11. The variations form is also used for non-variations procedures, what will happen to those?

- The project team is aware that the current PDF variations eAF is used instrumentally to facilitate certain other procedures for example for transfers of Marketing Authorisations.
- The variations PDF eAF will remain available for these types of instrumental uses initially, however it will not be maintained or updated.
- Supporting this incidental use through a web form is not currently on the DADI roadmap however it may be added in the future.

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12. Will the web-based forms ask the same information as the current eAF?

- The web-based forms are the input forms to create the application, these will change to accommodate PMS/UPD data requirements.
- The output forms will look similar to the current form and have the same information as the current forms.
- In addition, the FHIR XML backbone may contain additional metadata to facilitate regulatory activities.
- Details on all changes in data requested in the web-based form compared to the current eAF will be shared as part of the implementation and roll out.

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13. Will there be training?

- EMA and NCAs will team up to provide support, guidance and training for applicants. Details will be shared closer to the roll out of the first form (Variations), expected in 2022.
- As part of the roll out of the new forms training will be made available, with the exact format to be determined.
- In addition, applicants and stakeholders can expect several webinars to support rollout and answer questions.
- User guides will be updated to fully supported the web-based forms.
- There will be help online and on-screen tooltips within the system.

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14. How will stakeholders be notified of future version updates and changes to the forms and submission portal?

- The web-based forms support both centrally and nationally authorised products applications – requiring some coordination around updates and changes.
- The change control and maintenance processes are part of DADI's deliverables however they have not been agreed yet at this time.

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15. What is the connection between PMS and the web-based forms?

- PMS is the Product Management Service for product master data for human medicinal products, one of the four data management services managed by substances, products, organisations and referentials (SPOR) data management services for human and veterinary medicinal products. For Veterinary medicinal products, UPD is the service through which product master data is provided.
- The goals of SPOR services are:

    - increased data quality and simplification of data management practices, since data will be reviewed, assessed and approved as part of the new data operating model;
    - more efficient regulatory action and decision-making, thanks to improved data integrity and reliability;
    - regulatory requirements can be met more effectively, by reducing data silos and improving interoperability across EU systems;
    - operational savings and efficiencies can be achieved, as pharmaceutical companies need to supply regulatory data only once, which will be re-used across different procedures and regulators.
- In line with these goals the new web-forms will standardise input for eAFs in order to effectively provide standard PMS data.
- The web-forms will also use available PMS data to prepopulate form fields where relevant.
- FHIR was selected as the application programming interface for the PMS/UPD services and the web-based forms are an example of FHIR being used to exchange product master data.

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16. What will DADI web-based forms mean for legacy human medicinal product data in SIAMED and Article 57 databases?

- Currently human medicinal product data is stored in two databases: SIAMED and Article 57. The SPOR team is in the process of reconciling data in these two databases to create the baseline PMS dataset for human medicinal products.
- Once the initial dataset is ready, PMS data will be accessible to Marketing Authorisation Holders (MAHs) who will be able to confirm/correct/enrich the data.
- After the release of the web-based forms and the launch of PMS, new data will be added using data provided through new applications.
- The web-based form for human variations, the first form to be replaced will use a baseline PMS dataset when it becomes available. This dataset can and will need to be reviewed and enriched by MAHs. The process for review and enrichment is still to be determined.

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17. Will the data requested in forms for human medicinal products be ISO IDMP compliant?

- The intention is to facilitate data exchange of standardised master data; therefore, the forms will use PMS data which comply with ISO IDMP standards for human medicinal products.
- The scope of ISO IDMP and SPOR are different: ISO IDMP covers the entire medicinal product lifecycle, including development while PMS in SPOR covers only the Authorised Medicinal product part of IDMP.
- ISO IDMP covers human medicinal products only. As part of UPD veterinary data standards implemented are ISO IDMP compatible although there is no need for them to be ISO IDMP compliant.
- See this presentation for further details on the relation between SPOR, ISO IDMP and FHIR.

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18. Will DADI deliver forms complying with the new Veterinary Medicines Regulation (Regulation (EU) 2019/6)?

- Veterinary forms are in scope for DADI. This means that when DADI web-based forms for veterinary medicinal products are release, they must comply with the Veterinary Medicines Regulation (Regulation (EU) 2019/6).
- Due to the regulatory risks and the development risks of the form, the Steering Committee of DADI decided to decouple the development of the veterinary variations web-based form from the regulatory deadline of 28 January 2022. Instead, the current PDF based form will be updated to support regulatory requirements for the 28 January deadline.
- Development work on the veterinary form will start in early 2022 with release later in 2022.
- In the meantime, veterinary representatives participating in the DADI Requirement Group have been invited to stay on as observers to ensure a smooth uptake of veterinary requirements once development starts.
- The main benefit of this approach is that there is a reduced risk of new technology disrupting the transition to the new regulatory requirements. In addition, it means that a transition period can be facilitated, which will benefit from lessons learned from rolling out the human variations form.

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19. What is the connection between the web-based forms and UPD for veterinary medicinal product data?

- The UPD refers to the requirement for a new Union Product Database for all authorised veterinary medicinal products as per the veterinary medicinal products regulation, EU Regulation 2019/6. The UPD is accessible to the general public and will be a searchable database.

- UPD uses the same data repository for product master data as PMS, and it is commonly referred to as UPD to distinguish it from product master data for human medicinal products.
- The new web-forms will standardise input for eAFs in order to effectively provide standard UPD data.
- The web-forms will also use available UPD data to prepopulate form fields where relevant.
- FHIR was selected as the application programming interface for the common PMS and UPD data repository and the web-based forms are an example of FHIR being used to exchange UPD data.

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20. What is the difference between DADI and IRIS?

- IRIS is EMA's online platform to support product-related scientific and regulatory procedures with EMA.
- The future DADI portal will facilitate the population of complex forms with standard FHIR based datasets.
- IRIS and DADI portals serve different purposes and will be governed differently. However, the intention is to facilitate and develop ease of use across the two portals wherever feasible.
- For instance, the aim is to have the new portal benefit from the same access control model with user accounts and affiliations managed via the separate EMA Account Management System. This determination is still to be definitively made.
- IRIS is implemented using several technologies that will be also used to deliver DADI project, i.e. Microsoft PowerApps. Experience gained by EMA in building IRIS helps implementing DADI.

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21. Who will maintain the new web-based forms?

- The system facilitating the forms will be technically maintained and supported by EMA.
- The EMA Service Desk will be available to address issues and there will continue to be opportunities for applicants and other stakeholders to propose features.
- Until further notice the existing eAF Maintenance Group, which plays a key role in maintaining the current forms as well as providing expertise on the new, web-based forms will continue.
- As part of DADI, the governance will be reviewed, transparently, with the expectation that an advisory body, such as the current eAF Maintenance Group will continue to exist with EU regulatory Network and industry representation.

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22. Are the forms still owned by the NtA group?

- Yes, for human medicinal products the European Commission Notice to Applicants (NtA) expert group will remain responsible for the content requirements of the application forms.
- The web-based forms will meet these content requirements. They will however also ask additional information to support efficient handling of applications and SPOR data management services.

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23. What is ISO IDMP?

- The International Organization for Standardization (ISO) standard for identification of medicinal products (IDMP).
- ISO IDMP specifies the use of standardised definitions for the identification and description of medicinal products for human use.
- Their purpose is to facilitate the reliable exchange of medicinal product information in a robust and consistent manner.
- They help to ensure wide interoperability across global regulatory and healthcare communities, which is critical in ensuring accurate analysis and unambiguous communication across jurisdictions.
- Commission Implementing Regulation (EU) No 520/2012 (articles 25 and 26) obliges EU Member States, Marketing Authorisation Holders (MAHs) and EMA to make use of the ISO IDMP standards. This will impact on many areas of the pharmaceutical regulatory environment, both in the EU and other regions.
- For more information, see this Introduction to ISO IDMP and SPOR.

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24. What is FHIR?

- Fast Healthcare Interoperability Resources (FHIR) is a standard for exchanging healthcare information electronically.
- The DADI project team will create a FHIR specification as backbone for each of the new web-based forms.
- FHIR is the machine-readable language chosen to support the easy exchange of data between DADI's forms, systems and product databases such as PMS and UPD.
- FHIR aims to simplify implementation without sacrificing information integrity. It leverages existing logical and theoretical models to provide a consistent, easy to implement, and rigorous mechanism for exchanging data between healthcare applications.
- The basic building block in FHIR is a Resource. All exchangeable content is defined as a resource. Resources all share the following set of characteristics:
    - A common way to define and represent them, building them from data types that define common reusable patterns of elements;
    - A common set of metadata;

- A human readable part.

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25. Will the future forms still be called eAF?

- The expectation is that the web-based forms will still be called electronic Application forms (eAF).
- In DADI communications EMA will frequently refer to web-based application forms to distinguish them from the current PDF-file based electronic applications forms. Technically both are electronic application forms.

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26. What will be the options available to create the eAF PDF in the new interface?

- Three options were considered by the DADI project team:
  - Using the web-based form to create applications and export to PDF with an attached FHIR message;
  - Creating the entire application FHIR message in an applicant's own system to submit to an Application Programming Interface (API) for validation and transformation into a PDF with attached FHIR message;
  - Import a partial FHIR message into the web-based form to complete the application in the web user interface.
- Of these three options, the first is what will be available upon initial release. This is the core feature of the web-based forms which enables a move away from the current PDF-based data input while also enabling the FHIR output attached to the PDF output to facilitate handling of applications.
- The second option is undergoing further analysis and design work to ensure validation of data provided through such a mechanism can be ensured. Further considerations are that the eAF FHIR specification is still evolving within the FHIR standard itself, consequently there is currently limited support from third party vendors and tools implementing FHIR and, additionally, the EMA would like to minimise the need for updates and impacts to external users. The third option is pending a technical feasibility analysis.

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27. How will the eAF FHIR message relate to the PMS/UPD messages?

- The eAF FHIR message comprises two major parts: (1) the procedure part, known as the task resource, and (2) the medicinal products part. The procedure part is eAF specific, while the medicinal products will be represented through FHIR resources which are also in scope of PMS and UPD.

- A resource is the basic building block in the FHIR standard. All exchangeable content is defined as a resource. Resources all share the following set of characteristics:
    - A common way to define and represent them, building them from data types that define common reusable patterns of elements;
    - A common set of metadata;
    - A human readable part.
- There may be some additional resources and elements in the product part for the eAF that are needed only for a given regulatory procedure i.e. not to be reused, which will not be entered into PMS or UPD.

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28. My question isn't answered here, what do I do?

- DADI is currently developing the first form with a few decisions on requirements still pending, therefore not all questions have definitive answers. As the structure of the form is clarified the project team will share details and supporting documentation, including updates to this FAQ.
- Applicants wondering about specific features and interests can consider contacting an industry association representative on the requirements group or contacting EMA directly.
- In case you have any doubt about who to contact regarding your DADI-related question, email eSubprogofficer@ema.europa.eu which is the inbox checked directly by the DADI project team.
- If you have a technical question about the current eSubmissions systems rather than the DADI project, please contact EMA via the EMA Service Desk

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Table of abbreviations

Abbreviation	Explanation
AEMPS	Agencia Española de Medicamentos y Productos Sanitarios
AGES	Austrian Agency for Health and Food Safety
API	Application Programming Interface
BfArM	Bundesinstitut für Arzneimittel und Medizinprodukte
CAP	Centrally Authorised Product
CESSP	Common European Single Submission Portal
CP	Centralised Procedure
DADI	Digital Application Dataset Integration
DCP	Decentralised Procedure
eAF	Electronic Application Form
eCTD	electronic Common Technical Document
EEA	European Economic Areas
EC	European Commission
EU	European Union
EMA	European Medicines Agency
EMRN	European Medicines Regulatory Network
FHIR	Fast Healthcare Interoperability Resources
H	Human
HPRA	Health Products Regulatory Authority
IDMP	Identification of Medicinal Products
IT	Information Technology
ISO	International Organization for Standardization
MEB	Medicines Evaluation Board
MAA	Marketing Authorisation Application
MAH	Marketing Authorisation Holder
MRP	Mutual Recognition Procedure
NAP	Nationally Authorised Product
NCA	National Competent Authority
NOMA	Norwegian Medicines Agency

NP	National Procedure
NtA	Note to Applicants
PMS	Product Management Services
RG	Requirements Group
SE MPA	Swedish Medical Products Agency
SPOR	Management Services for Substances, Products, Organisations and Referentials
SRP	Subsequent Recognition Procedure
Q&A	Questions & Answers
UAT	User Acceptance Testing
UNICOM	Up-scaling the global univocal identification of medicines project
UPD	Union Product Database
VA	Variation Application
Vet	Veterinary
VMP	Veterinary Medicinal Products
VNees	Veterinary non-eCTD electronic submission.
xEVMPD	Extended EudraVigilance Medicinal Product Dictionary
XML	Extensible Markup Language