# New Work Item Proposal for

# an Assertion Collection IOD

# DICOM WG-07

**Introduction**

SOP Instances may receive assertions in different contexts, at different points in time, and with different intended utilizations. These assertions have a different lifetime/life cycle/temporal nature than the assessed SOP Instance.

An image series may be approved by different clinical professionals. One case might be approval as part of a radiotherapy planning process. Another case might be approval of the same image series for surgical intervention.

Thus, assertion needs to be considered separately from the content.

In 1st Generation DICOM RT Objects definitions, approvals are realized through the Approval Module that is part of the DICOM RT Plan and the DICOM RT Structure Set.

The need for independent handling of assertions was the basis for not including assertions or approvals in 2nd Generation DICOM RT Objects. Furthermore, the use of non-RT SOP Classes in Radiotherapy Workflows underscores the need for a more general mechanism.

Therefore, it is proposed to introduce a new IOD that can provide assertions on different levels of the DICOM Study/Series/Instance hierarchy outside of existing SOP Classes.

**Limitations of Current Standard and Proposal**

The existing Protocol Approval IOD is specific to protocols and does not allow documenting assertions for the mentioned use case.

The existing Content Assessment Results IOD is used to document which observations and corresponding results lead to a specific assessment and may therefore be included as references along the state of an assertion. It is not suited for the use case of collecting the assertions.

The existing Approval Module is always part of an IOD and therefore a change of the approval state causes a change of the instance UID which results in an unnecessary proliferation of data and compromises existing references. In addition, this Module has short-comings with respect to granularity, context and multiplicity. Therefore, this Module cannot meet current and foreseen clinical needs.

**Details of Proposal**

It is proposed to communicate assertions, such as approval, outside the payload IODs.

Therefore, a new IOD is proposed that allows referencing at Study, Series, Instance and sub-Instance hierarchy levels, along with the annotation of corresponding assertions based on the existing Assertion Macro.

The IOD need not be RT-specific and since the information represents the collection of assertions for a set of data, the name Assertion Collection is proposed.

**Parts of Standard Affected**

PS3.3, PS3.4, PS3.6, PS3.15, PS3.16

**Workload**

The work will be primarily conducted in WG-07 and Christof Schadt, co-chair of WG-07, will be the main editor. A dedicated sub-group of about four individuals within WG-07 will actively support the process.

As the new IOD is intended to primarily re-use existing concepts and introduce new codes, about 4 hours of WG-06 time for each review step are estimated.

Thus, a final version should be available after about one year, starting from November 2022 where a first draft could be discussed with WG-06.