



IHE-RO 2008 Managed Workflow Profiles

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The Problem

- **Currently in RT there are inefficiencies and potential sources of error. Workflow is often managed manually ('patient chart')**
- **Treatment delivery workflow systems ('Treatment Management Systems') use proprietary interfaces, which are expensive and complex to develop and maintain.**
- **It is currently difficult to integrate new technologies and devices (such as new patient positioning technologies) into the RT department.**

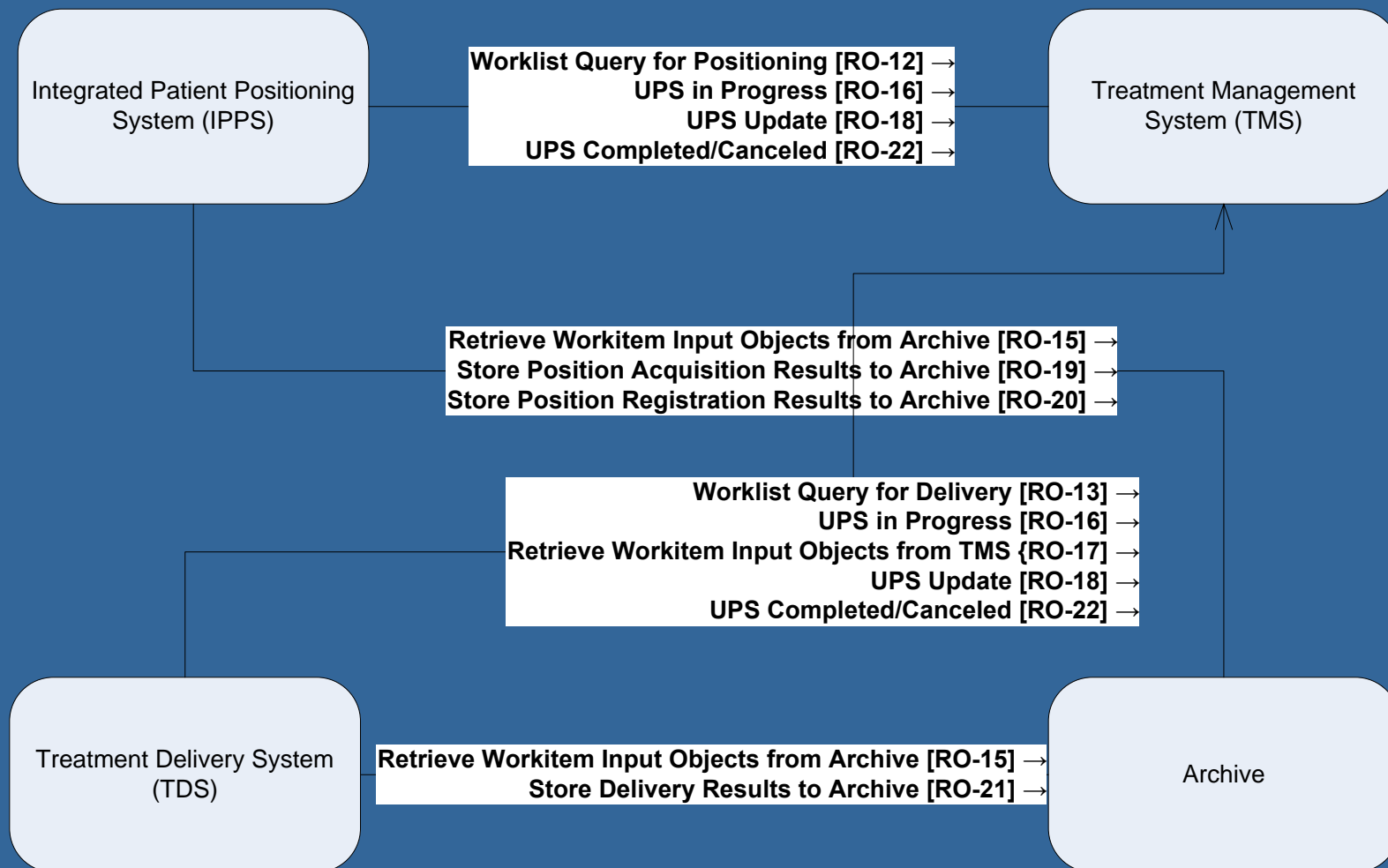
New Actors Involved in Workflow

- **Treatment Management System (TMS) – An information system that manages oncology information and is responsible for the scheduling of radiotherapy activities (i.e. is a workflow manager).**
- **Integrated Patient Positioning System (IPPS) – A system responsible for determining patient positioning prior to treatment, determining any adjustment required, and then adjusting it such that the patient is then in a position appropriate for treatment.**
- **Treatment Delivery System (TDS) – A system that delivers therapeutic radiation to a correctly positioned patient.**
- **Integrated Positioning and Delivery System (IPDS) – A system that determines and corrects patient position then delivers therapeutic radiation. An IPDS is a combination of an IPPS and TDS described above.**

Profile 1: Discrete Positioning and Delivery

- The Integrated Patient Positioning System (IPPS) acquires a set of 2D (planar projection) or 3D (CT) positioning images, performs a registration with previously retrieved reference images, and repositions the patient if necessary. Note that for this profile, the output of these steps is the fact that the patient positioning has been successfully performed.
- The Treatment Delivery System (TDS) then delivers the intended treatment.

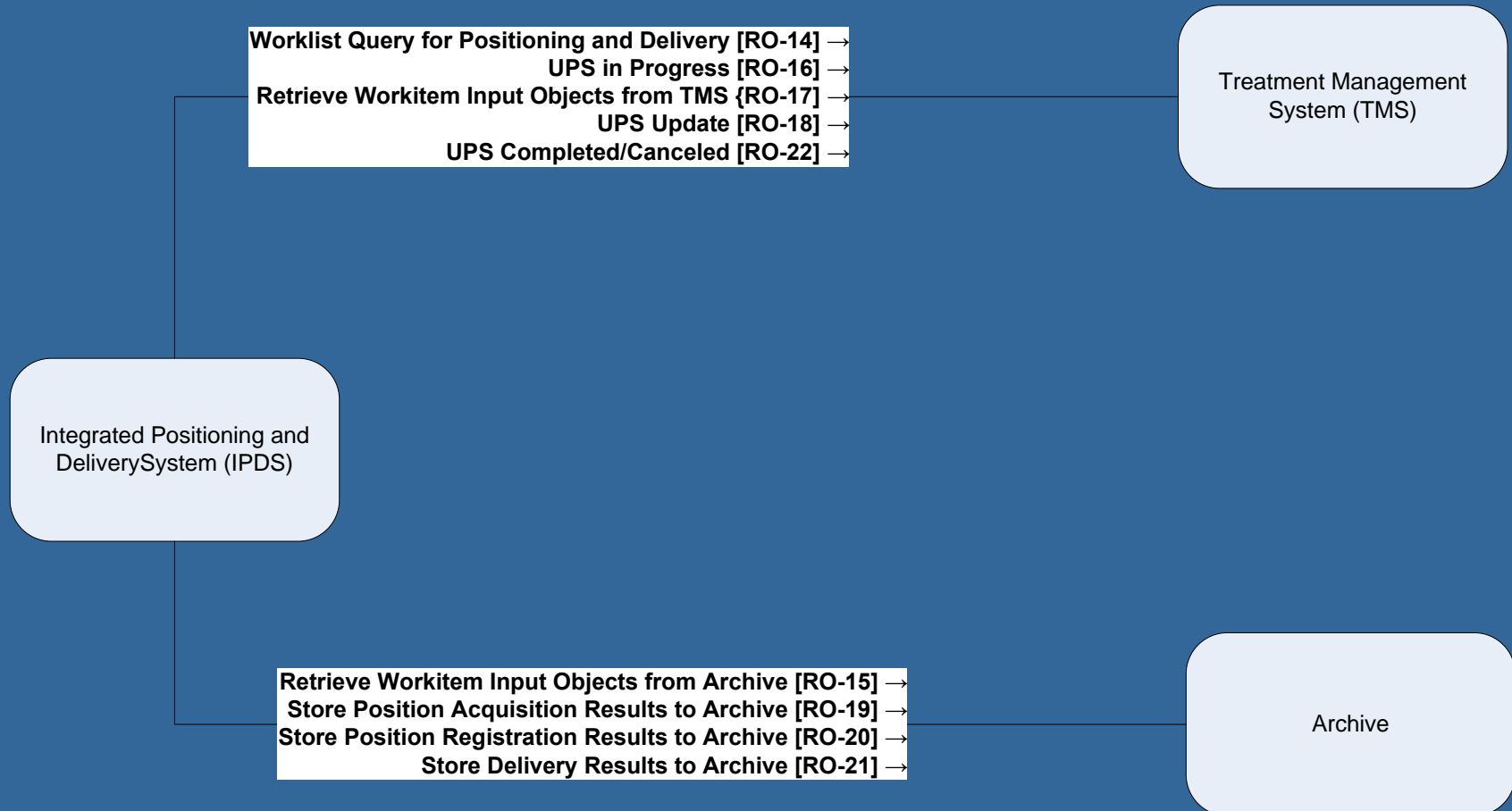
Discrete Positioning and Delivery: Actors and Transactions (proposed)



Profile 2: Integrated Positioning and Delivery

- The Integrated Positioning and Delivery System (IPDS) acquires a set of 2D (planar projection) or 3D (CT) positioning images, performs a registration with previously retrieved reference images, and repositions the patient if necessary. It then delivers the intended treatment.

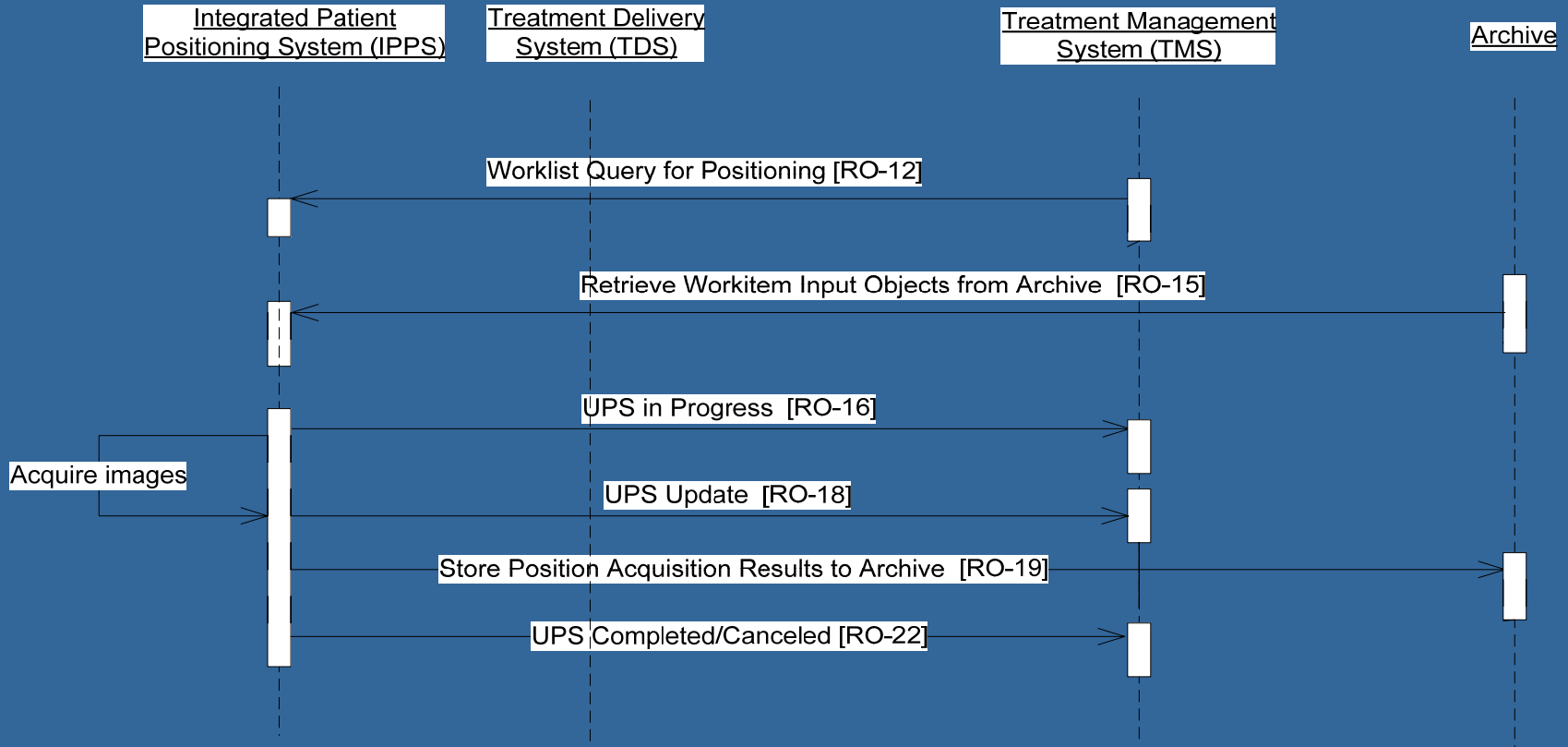
Integrated Positioning and Delivery: Actors and Transactions (proposed)



Standards Invoked by Workflow Profiles

- **DICOM 2007 - Base Standard**
- **DICOM Supplement 96 – Unified Worklist and Procedure Step. Frozen Draft version available for implementation. UWPS is a new workflow framework more powerful than Modality Worklist but less complex than General Purpose Worklist. RT is pioneering its use.**
- **DICOM Supplement 74 – Utilization of Worklist in Radiotherapy Treatment Delivery. Frozen Draft version available for implementation. Supplement 74 provides additional IODs and terminology needed in conjunction with Supplement 96.**

Acquiring Positioning Images: A Workflow Example Using Unified Procedure Step



Future Years

- **Demonstration of other procedure step types (e.g. simulation, planning, plan review, treatment review).**
- **Further breakdown of actors (e.g. positioning image acquirer, registration workstation, patient positioner).**
- **Non-managed workflow (e.g. emergency treatments).**
- **Integration of second-generation RT Objects and RT Course concepts being developed by DICOM WG7.**



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