

Semantics of Modelling Constructs from DSML4PTM

The below table contains the modelling constructs of DSML4PTM and related semantics. Each modelling construct inherits the semantics of the of the construct it extends. The inherited semantics is not reported in the table.

<i>Meta-Model</i>	Modelling construct		Semantics of modelling constructs from DSML4PTM
<i>BPMN</i>	Task		It cannot be “Discretionary”.
	Manual Task	PerformPhysicalAdmission,	It can be a “Discretionary”.
		PerformTransfer,	
		CreateTransferCaseRecord	
		ConductFirstAssessment	
	User Task	PrepareMedicalRecordAdmission	It cannot be “Discretionary”.
		ConfirmTransfer	
		MakeDispositionOfCase	
		PrepareRehabAdmission	
		PrepareKoGu	
		ReleaseTransferCase	
		FinalizeKoGu	
		PrepareRehabAdmission	
		CloseTransferCaseRecord	
	Service Task	ReleasePatientRecord,	
		OpenPatientCase	
	Business Rule Task	ApplyDefRehaCriteria	It cannot be “Discretionary”.
		ChooseRehabClinic	It can have a connection to a decision of the DMN requirements diagram.
		ReapplyDefRehaCriteria	

Loop Marker	It cannot be attached to a “Discretionary” task.
Parallel Marker	
Sequence Flow	It can be connected to and from “Discretionary” tasks.
Exclusive Gateway	
Parallel Gateway	
Pool	It is linked to “Organizational Unit” element of the Organization Model (i.e. bridging connector).
Pool Acute Hospital	It is linked to “Acute Hospital Organizational Unit” element of the Organization Model (i.e. bridging connector).
Pool Rehabilitation Clinic	It is linked to a “Rehabilitation Clinic Organizational Unit” element of the Organization Model (i.e. bridging connector).
Pool Health Insurance	It is linked to a “Health Insurance Organizational Unit” element of the Organization Model (i.e. bridging connector).
Lane	It is linked to a “Role” element of the Organization Model (i.e. bridging connector). It can include “Discretionary” tasks.
Lane Transferal Manager	It is linked to a “Transferal Manager” “Role” element of the Organization Model (i.e. bridging connector). It can include “Discretionary” tasks.
Lane Acute Physician	It is linked to a “Acute Physician” “Role” element of the Organization Model (i.e. bridging connector). It can include “Discretionary” tasks.
Lane Rehabilitation Physician	It is linked to a “Rehabilitation Physician” “Role” element of the Organization Model (i.e. bridging connector). It can include “Discretionary” tasks.
Lane Nurse	It is linked to a “Nurse” “Role” element of the Organization Model (i.e. bridging connector). It can include “Discretionary” tasks.
Lane Patient Disposition	It is linked to a “Patient Disposition” “Role” element of the Organization Model (i.e. bridging connector). It can include “Discretionary” tasks.
Message Flow	It can be connected to “Discretionary” tasks.
Data Object	It can be connected to either a “Group” or a “Data/Document” of the Documents and Knowledge Model (i.e. bridging connector).
KoGu Data Object	It is connected to the “KoGu” “Data/Document” of the Documents and Knowledge Model (i.e. bridging connector).

	It has KoGu template and KoGu Status as attributes.
Medical Data Data Object	It is connected to the “Medical Data” “Group” of the Documents and Knowledge Model (i.e. bridging connector).
Administrative Data Data Object	It is connected to the “Administrative Data” “Group” of the Documents and Knowledge Model (i.e. bridging connector).
Process Progress Data Object	It is connected to the “Process Progress” “Group” of the Documents and Knowledge Model (i.e. bridging connector).
Care Status Data Object	It is connected to the “Care Status” “Group” of the Documents and Knowledge Model (i.e. bridging connector).
Hospitalization Document Data Object	It is connected to the “Hospitalization Document” “Data/Document” of the Documents and Knowledge Model (i.e. bridging connector).
Data Association	Can also connect all new “Data Objects” with all tasks (also “Discretionary” tasks).
None Event (Standard Start)	It can be connected to “Discretionary” tasks.
None Event (Throwing Intermediate)	
None Event (Standard End)	
Message Event (Standard Start)	
Message Event (Catching Intermediate)	
Message Event (Throwing Intermediate)	
Message Event (Standard End)	
Timer Event (Catching Intermediate)	
Status	<p>It is connected to six status elements of the Documents and Knowledge Model.</p> <p>Attributes: Data released, First assessment done, Reha conference done, Transfer date, Hospital approval, Reha approval, Patient in reha, KoGu ready, KoGu sent, KoGu accepted, KoGu rejected, Information filled in, Medication list complete, Medication list sent, Case accepted, Patient accepted.</p> <p>Changes progress and color based on data collection of attributes, 15 possibilities from 0 (0%) to 14 (100%) filled in (Rehab conference and KoGu rejected are not relevant for progress).</p>

<i>CMMN</i>	Discretionary Task		<p>It can have one or more “Sentry” at the left border of the task, it can have a connection to a decision of the DMN requirements diagram.</p> <p>If both ON-part and IF-part do not evaluate to true the task is not executed. This applies also when the task is part of a process flow. In this case it will be skipped. Thus, the flow would continue to the next modelling construct in the model.</p> <p>It can start an activity or path in a process without an own start event when sentries evaluate to true.</p>		
	Sentry (Entry Criterion Shape)		It can be connected to any task type. It is shown in the process modelling view (main view) and it is linked (i.e. bridging connector) to a “Sentry” of the Control Element Model. Two or more sentries that are attached to the left side of any “Task” express the OR condition.		
<i>Control Element Meta-Model</i>	Sentry (of Control Element Model)		It has “Connection” to at least 1 “On-Condition” and 0 or 1 “If-Condition”. It is linked to a “Sentry” placed in the process modelling view: Sentry (Entry Criterion Shape) (i.e. bridging connector).		
	Connection		It connects “Sentry” (of Control Element Model) with “On-Condition” or “If-Condition” in the Control Element Model.		
	On-Part		It is connected to “Sentry” with “Connection” in the Control Element Model.		
	If-Part				
<i>DMN</i>	Decision	Decision Choose Rehab Clinic		It can be linked to a “Business Rule Task” or a “Discretionary Task” placed in the process modelling view (i.e. bridging connector).	
		Decision Rehab Suitability	Decision Geriatric Rehabilitation Suitability		
			Decision Internistic and Oncological Rehabilitation Suitability		
			Decision Cardiovascular Rehabilitation Suitability		
			Decision Musculoskeletal Rehabilitation Suitability		
			Decision Neurological Rehabilitation Suitability		
			Decision Pediatric Rehabilitation Suitability		

			Decision Paraplegic Rehabilitation Suitability	
			Decision Psychosomatic Rehabilitation Suitability	
			Decision Pneumological Rehabilitation Suitability	
			Decision Inpatient Rehabilitation Suitability	
			Decision Compulsory Medical Monitoring Rehabilitation Suitability	
			Decision Compulsory Medical Monitoring to Inpatient Rehabilitation Suitability	
			Decision Compulsory Medical Monitoring to Inpatient Rehabilitation Suitability	
			Decision Compulsory Medical Monitoring to Inpatient Rehabilitation Suitability	
Knowledge Source	Knowledge Source DefReha©			It has “attachment” as attribute.
Input data				It can be linked to a “Data/Document” of the Documents and Knowledge Model (i.e. bridging connector). It has “attachment” as attribute.
Business Knowledge				It can be connected to a “Decision Table”.
Business Knowledge Inclusion Criteria				It can be connected to any “Entry” or “Exit” “Decision Table”. It has “Rehabilitation Category” as enumeration attribute, e.g. geriatric, neurological category etc.
Business Knowledge Exclusion Criteria				
Business Knowledge Combination Inclusion and Exclusion Criteria				It can be connected to a “Suitability Decision Table”. It has “Rehabilitation Category” as enumeration attribute, e.g. geriatric, neurological category etc.
Information Requirement				Same as for DMN
Knowledge Requirement				Same as for DMN
Authority Requirement				Same as for DMN

	Has Decision Table	It connects any “Business Knowledge” to any “Decision Table”.
	Decision Table	It is connected to a “Business Knowledge” element
	Suitability Decision Table	I is connected to a “Combination Inclusion Criteria and Exclusion Criteria” element. It is prefilled with the columns: “Inclusion”, “Exclusion”, “Decision”.
	Entry Criteria Decision Table	It is connected to a “Inclusion Criteria” or “Exclusion Criteria” element.
	Exit Criteria Decision Table	
	Decision Table Inclusion to Inpatient Geriatric Rehabilitation Entry.	It is connected to a “Inclusion Criteria” element. It is prefilled with columns “Age”, “Geriatric Syndrome”, “Rehabilitation Required”, “Inclusion”.
	Decision Table Inclusion to Inpatient Geriatric Rehabilitation Exit Home/Long-term Facility	It is connected to a “Inclusion Criteria” element. It is prefilled with columns “General Condition”, “Rehabilitation Objectives”, “Inclusion”.
	Decision Table Exclusion to Inpatient Geriatric Rehabilitation Entry	It is connected to a “Exclusion Criteria” element. Prefilled with columns “Acutesomatic Treatment and Diagnostics Done”, “Other Specialized Rehabilitation Needed”, “Exclusion”.
	Decision Table Exclusion to Inpatient Geriatric Rehabilitation Exit	It is connected to a “Exclusion Criteria” element. It is prefilled with columns “Progress Allows Exit”, “Change for the Worse is Temporary”, “Exclusion”.
	Group	It can contain/aggregate several unspecified “Data/Documents”.
<i>Documents and Knowledge Meta-Model</i>	Care Status (Group)	It contains/aggregates “Documents” “Assistance Data”, “Special Medication Data”, is linked to a “Care Status Data Object” placed in the process modelling view (i.e. bridging connector).
	Administrative Data (Group)	It contains/aggregates “Data/Documents” “Patient Data”, “Patient Health Insurance Data”, “Acute Physician Data”, “Rehabilitation Data”, “KoGu”, “Hospitalization Document”, “Status” “Physical Transfer Status”, “KoGu Status”, “Acceptance Status”. It is linked to a “Administrative Data Data Object” of the process modelling view (i.e. bridging connector).
	Process Progress (Group)	It contains/aggregates “Data/Documents” “Process Data”, “Status” “Process Status”. It is linked to a “Process Progress Data Object” of the process modelling view (i.e. bridging connector).
	Medical Data (Group)	It contains/aggregates “Data/Documents” “General Data”, “ICF Standard”, “Medication List”, “Status” “ICF Qualifiers Status”, “Medication List Status”. It is linked to a “Medical Data Data Object” of the process modelling view (i.e. bridging connector).

Data/Document		<p>It can be part of a “Group”.</p> <p>It can be linked to a “Data Object” (i.e. bridging connector).</p>
Patient Data (Data/Document)		<p>It is included in the “Administrative Data” “Group”, It is linked to the “Administrative Data Data Object” (i.e. bridging connector).</p> <p>It contains the following attributes: Case number, Master Patient ID, MPI Patient ID, DRG primary code, DRG secondary code, Last name, First name, Country, Street & Nr., City, Canton, Date of Birth, City of birth, Canton of birth, Country of birth, Nationality, Mobile number, Mother tongue, Occupation, AHV number, Entry type, Hospitalization date.</p>
Patient Health Insurance Data (Data/Document)		<p>It is included in the “Administrative Data” “Group”. It is linked to the “Administrative Data Data Object” (i.e. bridging connector). It contains the following attributes: Health insurance provider, Health insurance number, Insurance model.</p>
Acute Physician Data (Data/Document)		<p>It is included in the “Administrative Data” “Group”. It is linked to the “Administrative Data Data Object” (i.e. bridging connector). It contains the following attributes: Physician Role, First Name, Last Name, Tel. number, E-mail.</p>
Rehabilitation Data (Data/Document)		<p>It is included in the “Administrative Data” “Group”. It is linked to the “Administrative Data Data Object” (i.e. bridging connector).</p> <p>It contains the following attributes: Role in Rehab, First Name, Last Name, Tel. number, E-mail, Confirmed, Clinic name, Street, Street nr., ZIP code, City, Country, Rehab category, Rehab subcategory, Proposed discharging date hospital, Proposed discharging date rehabilitation clinic, Patient ID rehabilitation, Rehab objective, Responsible Care Person Role in rehab, First Name, Last Name, Tel. number, E-mail, First Name Physician, Last Name Physician, Tel. number Physician, E-mail Physician, Hospital approval with date, Reha approval with date, Patient in reha with date, Patient accepted with date, Case accepted with date.</p>
KoGu (Data/Document)	KoGu Stroke	<p>It is included in the “Administrative Data” “Group”. It is linked to the DSML4PTM “KoGu Data Object”, is linked to the “Administrative Data Data Object” (i.e. bridging connector).</p> <p>It contains the following attributes: First name, Last name, Date of birth, Street & Nr., Zip code, City, Canton, Master Patient ID, MPI Patient ID, Clinic name, Street & Nr. ZIP code, City, Name family doctor, Address family doctor, Entry reason, Rehab category, Duration, Entry date, Rehab start date, Surgery date, Hospital, Diagnose ICD, Co-morbidity ICD, Therapy description, Body function, Body structure, Activity and Participation, Environmental factors, Treatment objective, Inability to work, Since when?, To how many percent?, Confirmation statements by the acute hospital, Refer-</p>
	KoGu Orthopaedic	
	KoGu Paediatric	
	KoGu Psychiatric	

		<p>ences, Concordat number, Name Physician, Tel. number Physician, Transferal Management Contact Hospital, Personnel, Tel. number transferal management, E-mail transferal management, Nutrition, Nutrition support, Personal Hygiene, Excretion / Toileting, (Un)dressing, Movement, Movement aid, Needed aid, Needed assistance, Weightbearing, From kg, To kg, Transfer, Understanding, Orientation, Social interaction, Aggressivity, Depression/Apathy, Restlessness, Stable mood, Adequate behavior and psyche, General remarks, KoGu ready with date, KoGu sent with date, KoGu rejected with date, KoGu accepted with date.</p> <p>It has a status. The status changes depending on one of the 4 achieved levels: ready, sent, rejected, accepted.</p>
	Hospitalization Document (Data/Document)	<p>It is included in the “Administrative Data” “Group”. It is linked to the “Hospitalization Document Data Object”, and to the “Administrative Data Data Object” placed in the process modelling view (i.e. bridging connector).</p> <p>It has the following attributes: <i>Hospitalization Part</i>: Insurance model, Health insurance provider, First name, Last name, Street & Nr., City, ZIP code, Date of birth, Tel. number, Hospitalization reason, Diagnosis / Functional deficit, Operation-/Accidentdate, Accompanying diseases, Treatment start, Treatment objective, Stay before rehabilitation start, Inability to work, Since when?, To how many percent?, First Name Physician, Last Name Physician, Tel. number Physician, Address Physician, City & Date <i>Clinic Entry Information Part</i>: First name, Last name, Street & Nr., Canton, Country, Tel. number, Mobile number, Date of birth, Place of citizenship, Nationality, Sex, Marital status, Denomination, Mother tongue, Occupation, AHV number, Employer, Employer address, Employer tel. number, Name closest relative, Address closest relative, Degree of relationship, Tel. number closest relative, Mobile number closest relative, Insurance model, Hospital entry possible, Calendar week, Health insurance provider, Address health insurance provider, Tel. number health insurance provider, Health insurance number, Complementary insurance provider, Address complementary insurance provider, Tel. number complementary insurance provider, Complementary insurance number, Name family doctor, Address family doctor, Tel. number family doctor, Name hospitalization physician, Address hospitalization physician, Tel. number hospitalization physician, City & Date, Filled in by <i>Care Status Part</i>: First name, Last name, Date of birth, Ability to move, Ability to eat/drink, Type of food, Diet description, Other description, Ability to urinate, Ability to excrete, Ability to take care of personal hygiene, Ability to (un)dress, Ability to acquire knowledge, Consciousness, Memory, Induction/deduction systems Type, Description, Since, VW, s/s, Decubitus, Decubitus wound documentation, Decubitus localization/grade, Skin changes/wounds, Skin changes/wounds documentation, Skin</p>

	changes/wounds localization/type, Support services, Brought aids, Cytostatic drug, Tysabri®, HIV-medication, Biologica, Other special medication/infusions, Description other special medication/infusions, Dialysis, Other specialities, Description other specialities, City & Date.
Medical Information (Data/Document)	<p>It is included in the “Medical Data” “Group”. It linked to the “Medical Data Data Object” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the following attributes: Affliction, Surgery date, Discharging date, Diagnose ICD, Co-morbidity ICD, CHOP code.</p> <p>“Trend” and “Status” of each category will be shown in the icon and will change based on the input of the respective attributes.</p>
Medication List (Data/Document)	<p>It is included in the “Medical Data” “Group”. It is linked to the “Medical Data Data Object” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the following attributes: Name of medicine, Dose, Time, Day of the week, Repeat, Via, Medication list complete with date, Medication list sent with date</p>
Assistance Data (Data/Document)	<p>It is included in the “Care Status” “Group”. It is linked to the “Care Status Data Object” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the following attributes: Ability to move, Ability to eat/drink, Type of food, Diet description, Other description, Ability to urinate, Ability to excrete, Ability to take care of personal hygiene, Ability to (un)dress, Ability to acquire knowledge, Consciousness, Memory, Induction/deduction systems Type, Description, Since, VW, s/s, Decubitus, Decubitus wound documentation, Decubitus localization/grade, Skin changes/wounds, Skin changes/wounds documentation, Skin changes/wounds localization/type, Support services, Brought aids.</p>
Special Medication Data (Data/Document)	<p>It is included in the “Care Status” “Group”. It is linked to the “Care Status Data Object” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the following attributes: Cytostatic drug, Tysabri®, HIV-medication, Biologica, Other special medication/infusions, Description other special medication/infusions, Dialysis, Other specialities, Description other specialities.</p>
Process Data (Data/Document)	<p>It is included in the “Process Progress” “Group”. It is linked to the “Process Progress Data Object” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the following attributes:</p> <p>Data released with date, First assessment done with date, Rehab conference done with date, Transfer date with date.</p>

Belongs to	It can connect any “Document”/”Group”/”Status” combination, also all newly created “Document” , “Group” and “Status” elements.
Has Subdocument	It can connect “Documents”, as well as all newly created “Documents”.
Process Status	<p>It is included in the “Process Progress” “Group”, “belongs to” “Document/Data” “Process Data”.</p> <p>It is linked to “Status” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the following attributes: Data released, First assessment done, Rehab conference done, Transfer date.</p> <p>Changes progress are based on data collection of attributes, 4 possibilities from 0 (0%) to 3 (100%) filled in (Rehab conference does not count to progress). In the graphical representation the color will change according to the different progress status.</p>
Physical Transfer Status	<p>It is included in the “Administrative Data” “Group”, “belongs to” “Document/Data” “Rehabilitation Data”, is linked to “Status” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the following attributes: Data released, First assessment done, Rehab conference done, Transfer date.</p> <p>Changes progress are based on data collection of attributes, 4 possibilities from 0 (0%) to 3 (100%) filled in (Rehab conference does not count to progress). In the graphical representation the color will change according to the different progress status.</p>
Physical Transfer Status	<p>It is included in the “Administrative Data” “Group”, “belongs to” “Document/Data” “Rehabilitation Data”.</p> <p>It is linked to “Status” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the following attributes: Hospital approval, Rehab approval, Patient in rehab.</p> <p>Changes progress are based on data collection of attributes, 4 possibilities from 0 (0%) to 3 (100%) filled in. In the graphical representation the color will change according to the different progress status.</p>
KoGu Status	It is included in the “Administrative Data” “Group”, “belongs to” “Document/Data” “KoGu”, is linked to “Status” placed in the process modelling view (i.e. bridging connector).

		<p>It contains the following attributes: KoGu ready, KoGu sent, KoGu accepted, KoGu rejected, KoGu Status.</p> <p>Changes progress are based on data collection of attributes, 4 possibilities from 0 (0%) to 3 (100%) filled in (KoGu rejected does not count to progress). In the graphical representation the color will change according to the different progress status.</p>
	ICF Qualifiers Status	<p>It is included in the “Medical Data” “Group”, “belongs to” “Document/Data” “ICF Standard”, is linked to “Status” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the Boolean attribute “information filled in”.</p> <p>Changes progress is based on data collection of attributes, 2 possibilities from 0 (0%) to 1 (100%) filled in. In the graphical representation the color of the icon will change according to the different progress status.</p>
	Medication List Status	<p>It is included in the “Medical Data” “Group”, “belongs to” “Document/Data” “Medication List”, is linked to “Status” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the following attributes: Medication list complete, Medication list sent.</p> <p>Changes progress is based on data collection of attributes, 3 possibilities from 0 (0%) to 2 (100%) filled in. In the graphical representation the color of the icon will change according to the different progress status.</p>
	Acceptance Status	<p>Is included in the “Administrative Data” “Group”, “belongs to” “Document/Data” “Rehabilitation Data”, is linked to “Status” placed in the process modelling view (i.e. bridging connector).</p> <p>It contains the attributes: Case accepted, Patient accepted.</p> <p>Changes progress is based on data collection of attributes, 3 possibilities from 0 (0%) to 2 (100%) filled in. In the graphical representation the color of the icon will change according to the different progress status.</p>
Organizational Meta-Model	Organizational Unit	<p>It can “belong to” and “be subordinated” to another “Organizational Unit”.</p> <p>A “Performer” or a “Role can “belong to” an “Organizational Role”.</p> <p>A “Performer” can be “manager of” an “Organizational Unit”.</p> <p>It can be linked to a “Pool” element placed in the process modelling view (i.e. bridging connector). This also applies for any newly created “Organizational Unit”.</p>
	Organizational Unit Acute Hospital	See Organizational Unit.

	It is linked to the “Acute Hospital” pool element placed in the process modelling view (i.e. bridging connector).
Organizational Unit Rehabilitation Clinic	See “Organizational Unit”. It is linked to the “Rehabilitation Clinic” pool element placed in the process modelling view (i.e. bridging connector).
Organizational Unit Care Unit	See “Organizational Unit”.
Organizational Unit Non-intensive Care Unit	
Organizational Unit Intensive Care Unit	
Organizational Unit Emergency Room	
Organizational Unit Site of Care	
Organizational Unit Health Insurance	See “Organizational Unit”. It is linked to the “Health Insurance” pool element placed in the process modelling view (i.e. bridging connector).
Team	It can aggregate “Roles”, “Performers” and/or “Organizational Units”.
Performer	It can belong to an “Organizational Role”. It can be manager of an “Organizational Unit”. It “Has role” pointing to a “Role”. This also applies to any newly created “Organizational Unit” or “Role”. Also, “Role” can belong to a “Performer”.
Role	It can belong to an “Organizational Unit” or a “Performer”. A “Performer” can have a “Role”. It can be linked to a “Lane” element placed in the process modelling view (i.e. bridging connector). This also applies to any newly created “Organizational Unit” or “Role”.
Role Administrative Staff	See “Role”.
Role Nurse	See “Role”. It is linked to the “Nurse” lane element placed in the process modelling view (i.e. bridging connector).

Role Acute Physician	<p>See “Role”.</p> <p>It is linked to the “Acute Physician” lane element placed in the process modelling view (i.e. bridging connector).</p>
Role Rehabilitation Physician	<p>See “Role”.</p> <p>It is linked to the “Rehabilitation Physician” lane element placed in the process modelling view (i.e. bridging connector).</p>
Role Patient Disposition	<p>See “Role”.</p> <p>It is linked to the “Patient Disposition” lane element placed in the process modelling view (i.e. bridging connector).</p>
Role Patient	See “Role”.
Role Transferal Manager	<p>See “Role”.</p> <p>It is linked to the “Patient Disposition” lane element placed in the process modelling view (i.e. bridging connector).</p>
Is subordinated	It can connect “Organizational Units” elements.
Belongs to	It can connect any “Role”, “Performer”, “Organizational Unit”.
Is manager	It can connect a “Performer” to any “Organizational Unit”.
Has role	It can connect a “Performer” to any “Role”.