Table 1: Personal data processing scenarios and their mappings to P2Onto

No.	OPP Sce- nario	OPP At- tribute	OPP Value	P2Onto Concept
1	User Access, Edit and Dele- tion	Access Scope	User account data	$User \rightarrow UserAccessActivity \rightarrow AccountData$
			Other data about user	$User \rightarrow UserAccessActivity \rightarrow NonSensitiveData$
			Profile data	$User \rightarrow UserAccessActivity \rightarrow SensitiveData$
			Transactional data	$User \rightarrow UserAccessActivity \rightarrow FinancialData$
			Other	User → UserAccessActivity → Data
0	T 1	Access Type	All Available	User → UserAccessActivity → DataControlMechanism
2	International and Specific Audiences	Audience Type	All Available	$User \rightarrow UserSpecialCategory$
3	Policy Change	Change Type	Privacy relevant change	FirstParty → PolicyChangeActivity → PrivacyRelatedCause
			Non-privacy relevant change	FirstParty → PolicyChangeActivity → NonPrivacyRelatedCause
			In case of merger or ac- quisition	$\label{eq:FirstParty} \rightarrow \text{PolicyChangeActivity} \rightarrow \text{MergeAcquisitionCause}$
			Other	$FirstParty \rightarrow PolicyChangeActivity \rightarrow OtherCause$
		User Choice	All Available	$User \rightarrow UserOptControl$
		Notification Type	Personal notice	FirstParty \rightarrow PolicyChangeActivity \rightarrow NotificationMechanism (as more generalized mechanism since we do not have it specified)
			General notice on website	FirstParty → PolicyChangeActivity → OnWebsitePage
			Other General notice	FirstParty → PolicyChangeActivity → NotificationMechanism FirstParty → PolicyChangeActivity → InPrivacyPolicy
			in privacy policy	FirstParty → PoncyChangeActivity → InPrivacyPoncy
4	Data Security	Security Mea-	Privacy / Secu-	Activity → TechnicalSecurityMeasure (the activity is generic because the security
		sure	rity program Secure user au-	measure is not connected to specific activity)
			thentication Secure data	-
			storage	_
			Data access limitation	_
			Secure data transfer	
			Privacy review / audit	Activity \rightarrow Organizational SecurityMeasure (the activity is generic because the security measure is not connected to specific activity)
			Privacy train- ing	
			Other	Activity \to Security Measure (the activity is generic because the security measure is not connected to specific activity)
5	First Party Collection / Use	Choice Scope	Collection	$\label{eq:FirstParty} \rightarrow \text{DataCollectionActivity (defines if the activity is for collection)}$
			Use	FirstParty → DataUseActivity (defines if the activity is for use)
			Both	FirstParty DataCollectionActivity & DataUseActivity (defines if the activity is for both collection and use, in such a case activity will have 2 parent classes)
		Collection	All Available	both collection and use, in such a case activity will have 2 parent classes) FirstParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow DataCollectionMechanism
		Mode		→ DataCollectionMode
		Purpose Action First-	All Available All Available	$\label{eq:FirstParty} \begin{split} &\operatorname{FirstParty} \to \operatorname{DataCollectionActivity} / \operatorname{DataUseActivity} \to \operatorname{DataActivityPurpose} \\ &\operatorname{FirstParty} \to \operatorname{DataCollectionActivity} / \operatorname{DataUseActivity} \to \operatorname{DataCollectionMechanism} \end{split}$
		Party	Generic personal informa-	$FirstParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow PersonalData$
			Location tion	$FirstParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow NonSensitiveData$
			Social media data	FirstParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow NonSensitiveData
			User online activities	FirstParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow NonSensitiveData
			Cookies and tracking ele-	$FirstParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow TrackingData$
			Personal identifier	$FirstParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow UserAccountData$
			Computer information	$FirstParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow UserDeviceInfo$
			User profile	$FirstParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow SensitiveData$
			IP address and device IDs	$\label{eq:activity} FirstParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow TrackingData$
			Survey data	$FirstParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow SensitiveData$
			Contact	$FirstParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow NonSensitiveData$

Table 2: Personal data processing scenarios and their mappings to P2Onto

No.	OPP Sce- nario	OPP At- tribute	OPP Value	P2Onto Concept
			Demographic	FirstParty → DataCollectionActivity / DataUseActivity → SensitiveData
			Health	$FirstParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow HealthData$
			Financial	$FirstParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow FinancialData$
			Other	FirstParty → DataCollectionActivity / DataUseActivity → Data
		Identifiability	All Available	$First Party \rightarrow Data Collection Activity \ / \ Data Use Activity \rightarrow Pseudoanonymization$
6	Third Party Sharing / Col- lection	Choice Scope	Collection	ThirdParty \rightarrow DataCollectionActivity (defines if the activity is for collection)
			Use	ThirdParty → DataUseActivity (defines if the activity is for use)
			Both	ThirdParty \rightarrow DataCollectionActivity & DataUseActivity (defines if the activity for both collection and use, in such a case activity will have 2 parent classes)
		Collection Mode	All Available	ThirdParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow DataCollectionMednism \rightarrow DataCollectionMode
		Purpose	All Available	ThirdParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow DataActivityPurpose
		Action First-	All Available	ThirdParty → DataCollectionActivity / DataUseActivity → DataCollectionMed
		Party	Till Tivaliable	nism
			Generic personal informa-	$\label{eq:ThirdParty} \textbf{-DataCollectionActivity} \ / \ \textbf{DataUseActivity} \ \rightarrow \ \textbf{PersonalData}$
			tion	ThirdDorte Date Collection Activity / Date Hee Activity New Consisting Date
			Location	ThirdParty → DataCollectionActivity / DataUseActivity → NonSensitiveData
			Social media data	$ThirdParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow NonSensitiveData$
			User online activities	$\label{eq:constraints} ThirdParty \rightarrow DataCollectionActivity \ / \ DataUseActivity \rightarrow NonSensitiveData$
			Cookies and	$ThirdParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow TrackingData$
			tracking ele- ments	,
			Personal identifier	$ThirdParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow UserAccountData$
			Computer information User Profile	ThirdParty → DataCollectionActivity / DataUseActivity → UserDeviceInfo
			IP address and	ThirdParty → DataCollectionActivity / DataUseActivity → SensitiveData ThirdParty → DataCollectionActivity / DataUseActivity → TrackingData
			device IDs	Timurarty \(\to\) DataConectionActivity / DataOseActivity \(\to\) TrackingData
			Survey data	ThirdParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow SensitiveData
			Contact	ThirdParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow NonSensitiveData
			Demographic	ThirdParty → DataCollectionActivity / DataUseActivity → SensitiveData
			Health	ThirdParty → DataCollectionActivity / DataUseActivity → HealthData
			Financial	$ThirdParty \rightarrow DataCollectionActivity / DataUseActivity \rightarrow FinancialData$
		Identifiability	All Available	ThirdParty → DataCollectionActivity / DataUseActivity → Pseudoanonymizatio
7	Data Retention	Personal Information Type	User Profile	$FirstParty \rightarrow DataRetentionActivity \rightarrow SensitiveData$
			Generic personal information	$FirstParty \rightarrow DataRetentionActivity \rightarrow PersonalData$
			Location	$FirstParty \rightarrow DataRetentionActivity \rightarrow NonSensitiveData$
			Social media	FirstParty → DataRetentionActivity → NonSensitiveData
			data	
			User online activities	$FirstParty \rightarrow DataRetentionActivity \rightarrow NonSensitiveData$
			Cookies and tracking ele- ments	$FirstParty \rightarrow DataRetentionActivity \rightarrow TrackingData$
			Personal iden- tifier	$FirstParty \rightarrow DataRetentionActivity \rightarrow UserAccountData$
			Computer information	$FirstParty \rightarrow DataRetentionActivity \rightarrow UserDeviceInfo$
			User profile	FirstParty → DataRetentionActivity → SensitiveData
			IP address and device IDs	$FirstParty \rightarrow DataRetentionActivity \rightarrow TrackingData$
			Survey data	$FirstParty \rightarrow DataRetentionActivity \rightarrow SensitiveData$
			Contact	FirstParty → DataRetentionActivity → NonSensitiveData
			Demographic	FirstParty → DataRetentionActivity → SensitiveData
			Health	FirstParty \rightarrow DataRetentionActivity \rightarrow HealthData
			Financial	$FirstParty \rightarrow DataRetentionActivity \rightarrow FinancialData$
		Retention Purpose	All Available	$FirstParty \rightarrow DataRetentionActivity \rightarrow DataActivityPurpose$
		Retention Period	All Available	$FirstParty \rightarrow DataRetentionActivity \rightarrow DataRetentionTime$
	User Choice / Control	Purpose	All Available	$\mbox{User} \rightarrow \mbox{UserPrivacyControl} \rightarrow \mbox{DataActivityPurpose}$
		Personal Information Type	User Profile	User → UserPrivacyControl → SensitiveData
			Generic per- sonal informa- tion	$User \rightarrow UserPrivacyControl \rightarrow PersonalData$
			Location	$User \rightarrow UserPrivacyControl \rightarrow NonSensitiveData$
			Social media	$User \rightarrow UserPrivacyControl \rightarrow NonSensitiveData$
			data	

Table 3: Personal data processing scenarios and their mappings to P2Onto

No.	OPP S nario	Sce-	OPP tribute	At-	OPP Value	P2Onto Concept
					User online ac- tivities	$User \rightarrow UserPrivacyControl \rightarrow NonSensitiveData$
					Cookies and tracking elements	$User \rightarrow UserPrivacyControl \rightarrow TrackingData$
					Personal iden- tifier	$User \rightarrow UserPrivacyControl \rightarrow UserAccountData$
					Computer in- formation	$User \rightarrow UserPrivacyControl \rightarrow UserDeviceInfo$
					User profile	$User \rightarrow UserPrivacyControl \rightarrow SensitiveData$
					IP address and device IDs	$User \rightarrow UserPrivacyControl \rightarrow TrackingData$
					Survey data	$User \rightarrow UserPrivacyControl \rightarrow SensitiveData$
					Contact	$User \rightarrow UserPrivacyControl \rightarrow NonSensitiveData$
					Demographic	$User \rightarrow UserPrivacyControl \rightarrow SensitiveData$
					Health	$User \rightarrow UserPrivacyControl \rightarrow HealthData$
					Financial	$User \rightarrow UserPrivacyControl \rightarrow FinancialData$
			Choice Ty	ре	All Available	$User \rightarrow UserPrivacyControl \rightarrow DataControlMechanism$
9	Do Not Tra	ck	_		_	_

2 OPP-115 structure

```
Listing 1: Personal data processing scenarios and their bindings to P2Onto
"Policy Change": {
         "Notification Type": [
                  "Personal notice",
                  "General notice on website",
                  "Unspecified",
                  "Other",
                  "No notification",
                  "General notice in privacy policy"
        ],
"Change Type": [
"In case
                  "In case of merger or acquisition",
                  "Unspecified",
                  "Non-privacy relevant change",
                  "Other",
                  "Privacy relevant change"
        ],
"User Choice": [
                  "User participation",
                  "Opt-out",
                  "None"\,,
                  "Unspecified",
                  "Other",
                  "Opt-in"
},
"Data Security": {
    "Grantity"
         "Security Measure": [
                  "Secure user authentication",
                  "Privacy review/audit",
                  "Other",
"Secure data transfer",
                  "Unspecified",
                  "Privacy/Security program",
                  "Secure data storage",
                  "Data access limitation",
                  "Generic",
                  "Privacy training"
"Do Not Track": {
```

```
"Do Not Track policy": [
                 "Other",
                 "Mentioned, but unclear if honored",
                 "Honored",
                 "Not honored"
},
"Third Party Sharing/Collection": {
        "Purpose":
                 "Personalization/Customization",
                 "Merger/Acquisition",
                 "Basic service/feature",
                 "Service operation and security",
                 "Unspecified",
                 "Additional service/feature",
                 "Other",
                 "Marketing",
                 "Advertising",
                 "Legal requirement",
                 "Analytics/Research"
        ] , "Does/Does Not": [
                 "Does",
                 "Does Not"
        "not-selected",
                 "Unspecified",
                 "Aggregated or anonymized",
                 "Other",
                 "Identifiable"
        ],
"Action Third Party": [
                 "Track on first party website/app",
                 "Receive/Shared with",
                 {\rm "See}\,{\rm "}\,,
                 "Unspecified",
                 "Other",
                 "Collect on first party website/app"
        ],
"Personal Information Type": [
                 "Demographic",
                 "Location",
                 "User online activities",
                 "Computer\ information",\\
                 "Survey data",
                 "Cookies and tracking elements",
                 "Contact",
                 "Personal identifier",
                 "User Profile",
                 "Unspecified",
                 "Generic personal information",
                 "Financial",
                 "IP address and device IDs",
                 "Other",
                 "Health"
        "User Type": [
                 "not-selected",
                 "Unspecified",
                 "User with account",
                 "Other",
                 "User without account"
        Choice Type": [
```

```
"not-selected",
                 "First-party privacy controls",
                 "Opt-out link",
                 "Opt-out via contacting company",
                 "Dont use service/feature",
                 "Browser/device privacy controls",
                 "Unspecified",
                 "Other",
                 "Third-party privacy controls",
        ],
"Third Party Entity": [
"Other users",
                 "Other users",
                 "Unnamed third party",
                 "Public",
                 "Named third party",
                 "Unspecified",
                 "Other",
                 "Other part of company/affiliate"
        "not-selected",
                 "Use",
                 "Unspecified",
                 "Both",
                 "Collection"
},
"User Choice/Control": {
        "Purpose": [
                 "Personalization/Customization",
                 "Merger/Acquisition",
                 "Basic service/feature",
                 "Service Operation and Security",
                 "Unspecified",
                 "Additional service/feature",
                 "Other",
                 "Marketing",
                 "Advertising",
                 "Legal requirement",
                 "Analytics/Research"
        ],
"Personal Information Type": [
                 "Location",
                 "Demographic"\,,
                 "User online activities",
                 "Computer information",
                 "User profile",
                 "Contact",
                 "Cookies and tracking elements",
                 "Social media data",
                 "Personal identifier"
                 "IP address and device IDs",
                 "Unspecified",
                 "Generic personal information",
                 "Financial",
                 "Survey data",
                 "Other",
                 "Health"
        ],
"User Type": [
"not-s
                 "not-selected",
                 "Unspecified",
                 "User with account",
                 "Other",
```

```
"User without account"
        Choice Type": [
                 "First-party privacy controls",
                 "Opt-out link",
                 "Opt-out via contacting company",
                 "Dont use service/feature",
                 "Browser/device privacy controls",
                 "Unspecified",
                 "Other",
                 "Third-party privacy controls",
                 "Opt-in"
        ],
"Choice Scope": [
"Third pa
                 "Third party sharing/collection",
                 "Third party use",
                 "Unspecified",
                 "First party use",
                 "First party collection"
},
"Data Retention": {
    "Patention"
        "Retention Purpose": [
                 "Perform service",
                 "Service operation and security",
                 "Unspecified",
                 "Other",
                 "Marketing",
                 "Advertising",
                 "Legal requirement",
                 "Analytics/Research"
        ],
"Personal Information Type": [
                 "Location",
                 "Demographic",
                 "User online activities",
                 "Computer information",
                 "User profile",
                 "Cookies and tracking elements",
                 "Contact",
                 "Social media data",
                 "Personal identifier",
                 "IP address and device IDs",
                 "Unspecified",
                 "Generic personal information",
                 "Financial",
                 "Survey data",
                 "Other",
                 "Health"
        ],
"Retention Period": [
"":mited".
                 "Limited",
                 "Unspecified"
                 "Stated Period",
                 "Other",
                 "Indefinitely"
},
"First Party Collection/Use": {
        "Purpose": [
                 "Personalization/Customization",
                 "Merger/Acquisition",
                 "Basic service/feature",
                 "Service Operation and Security",
                 "Marketing",
```

```
"Unspecified",
         "Additional service/feature",
         "Analytics/Research",
         "Advertising",
         "Legal requirement"
os/Does/Does Not": [
         "Does",
         "Does Not"
],
"Identifiability": [
         "not-selected",
         "Unspecified",
         "Aggregated or anonymized",
         "Other",
         "Identifiable"
"Action First-Party": [
         "Collect in mobile app",
         "Receive from other parts of company/affiliates",
"Receive from other service/third-party (named)",
"Receive from other service/third-party (unnamed)",
         "Collect from user on other websites",
         "Collect on mobile website",
         "Track user on other websites",
         "Unspecified",
         "Other",
         "Collect on website"
],
"Collection Mode": [
         "not-selected",
         "Implicit",
         "Unspecified",
         "Explicit"
],
"Personal Information Type": [
         "Location",
         "Demographic",
         "User online activities",
         "Computer information",
         "User profile",
         "Contact",
         "Cookies and tracking elements",
         "Social media data",
         "Personal identifier",
         "IP address and device IDs",
         "Unspecified",
         "Generic personal information",
         "Financial",
         "Survey data"
         "Other",
"Health"
"User Type": [
         "not-selected",
         "Unspecified",
         "User with account",
         "Other",
         "User without account"
Choice Type": [
         "not-selected",
         "First-party privacy controls",
"Opt-out link",
```

```
"Opt-out via contacting company",
                  "Dont use service/feature",
                  "Browser/device privacy controls",
                  "Unspecified",
                  "Other",
"Third-party privacy controls",
                  "Opt-in"
         ],
"Choice Scope": [
"-ot-selec
                  "not-selected",
                  "Use"\,,
                  "Unspecified",
                  "Both",
                  "Collection"
},
"International and Specific Audiences": {
         "Audience Type": [
                  "Children",
                  "Citizens from other countries",
                  "Europeans"\,,
                  "Californians",
                  "Other"
},
"User Access, Edit and Deletion": {
         "Access Scope": [
                  "Profile data",
                  "Other data about user",
                  "Unspecified",
                  "User account data",
                  "Other",
                  "Transactional data"
        ],
"User Type": [
"not-s
                  "not-selected",
                  "Unspecified",
                  "User with account",
                  "Other",
                  "User without account"
        ],
"Access Type": [
"Fyport"
                  "Export"
                  "Edit information",
                  "Deactivate account",
                  "View",
                  "Delete account (partial)",
                  "None",
                  "Unspecified",
                  "Delete account (full)",
                  "Other"
},
"Other": {
         "Other Type": [
                  "Introductory/Generic",
                  "Practice not covered",
                  "Privacy contact information",
                  "Other"
}
```

}