

COSMOS

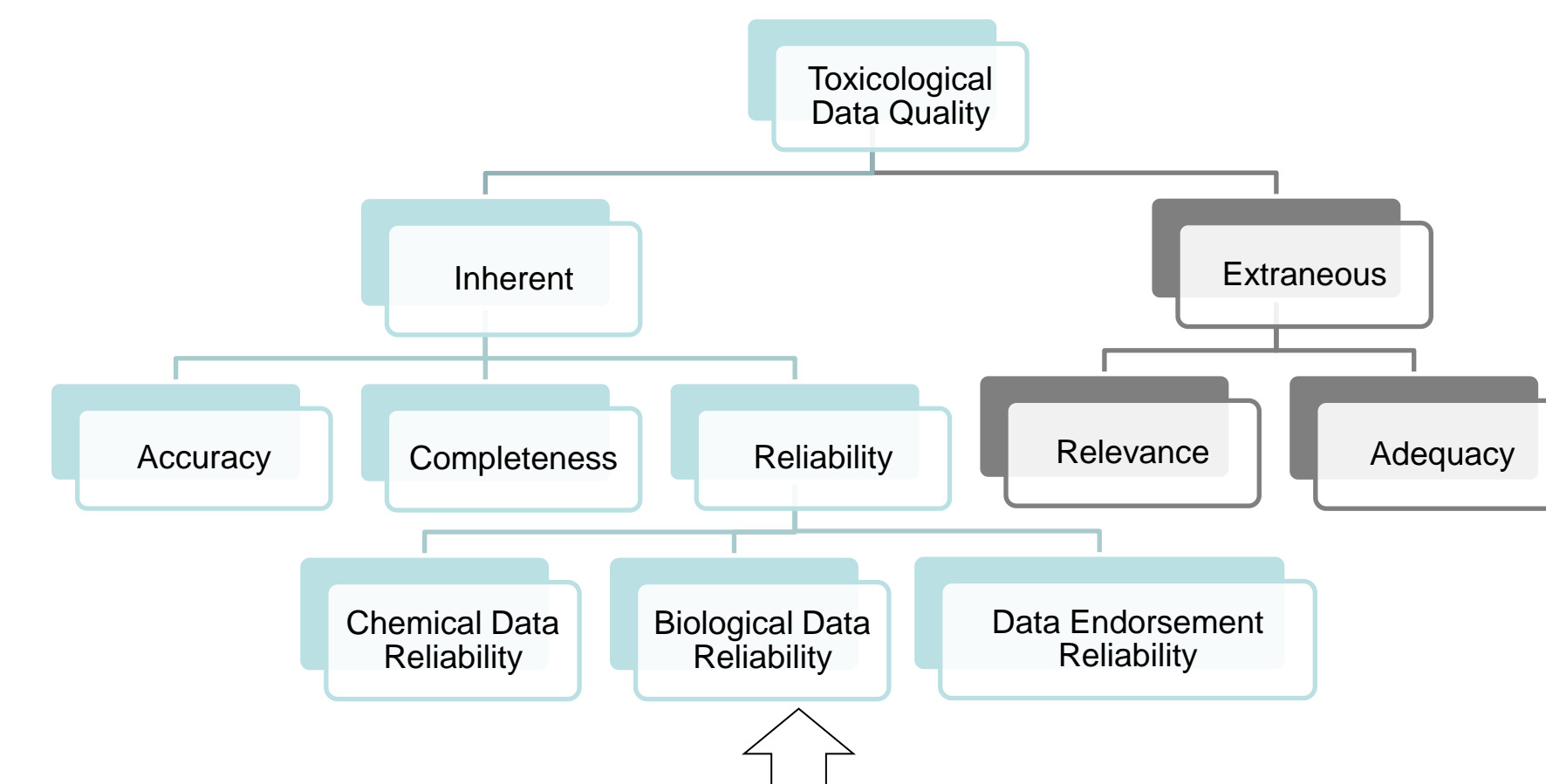
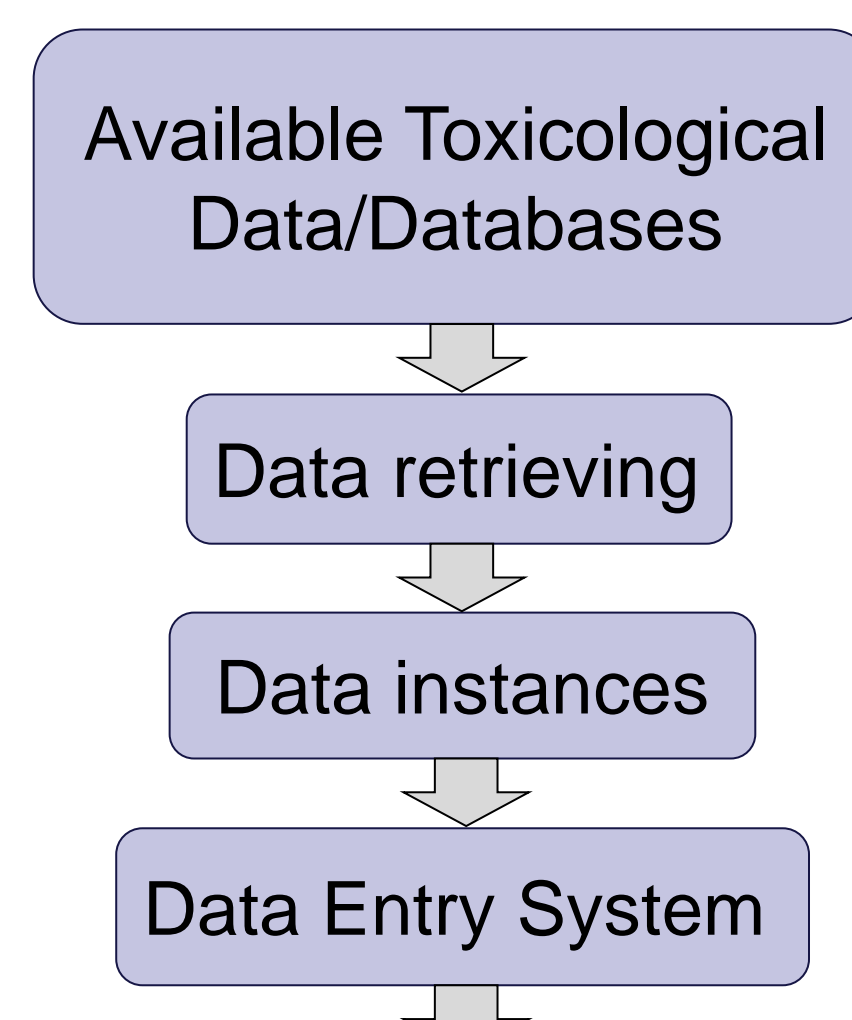
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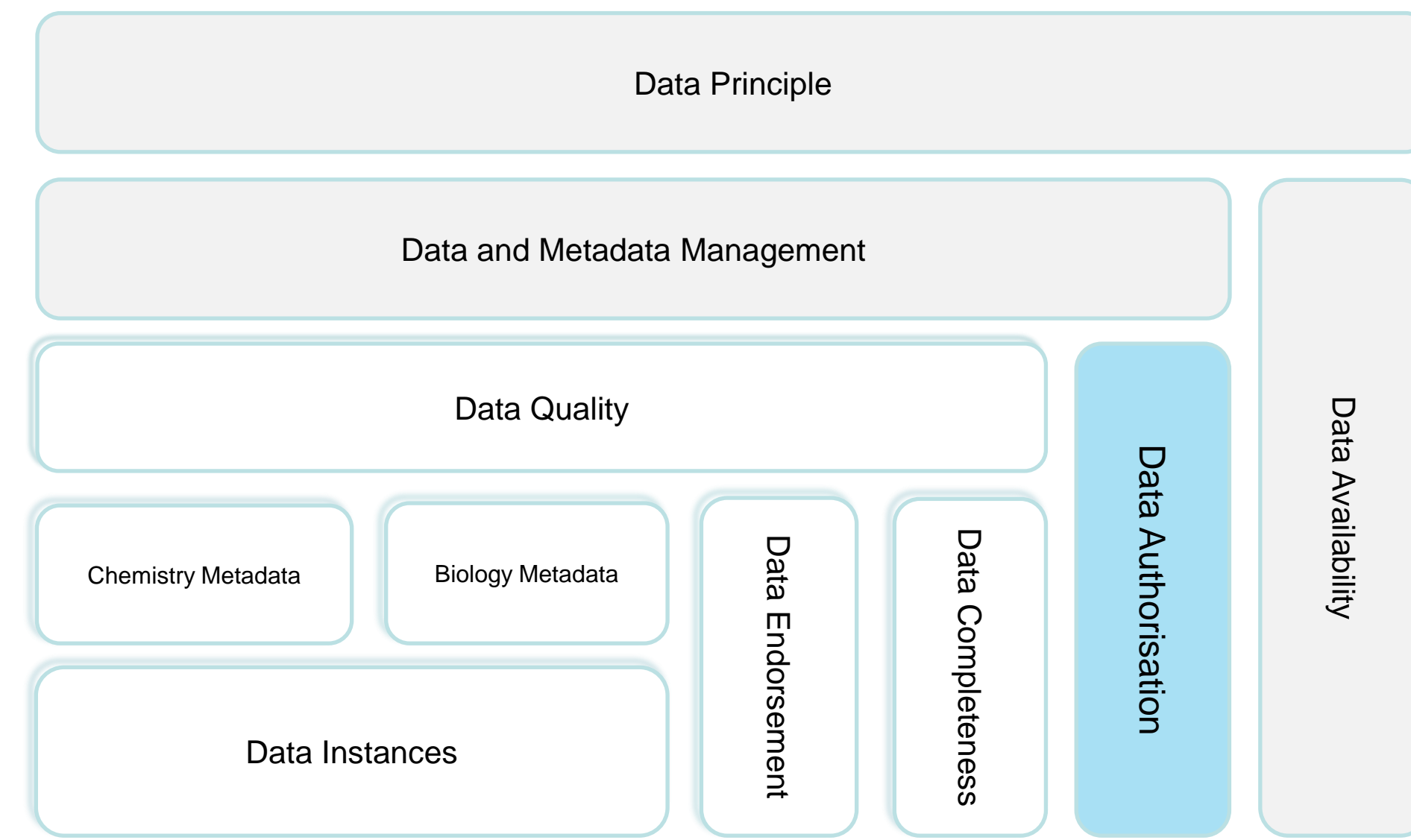
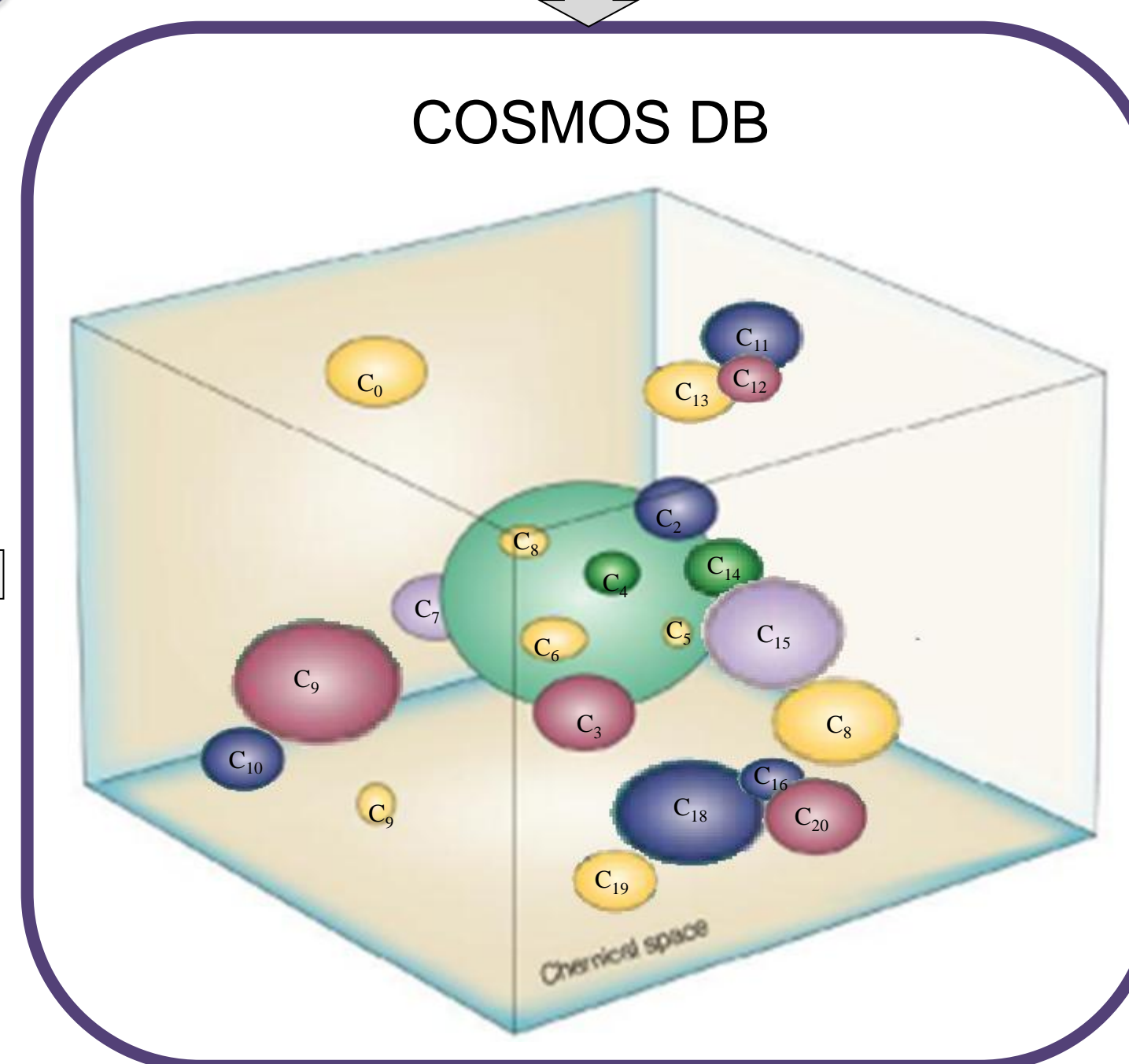
Results

- Identified available toxicity data sources;
- Developed a data schema;
- Designed the data entry system;
- Deployed “proof of concept” database;
- Analysed a data authorisation model;
- Proposed a data quality-control, curation and data governance strategy.

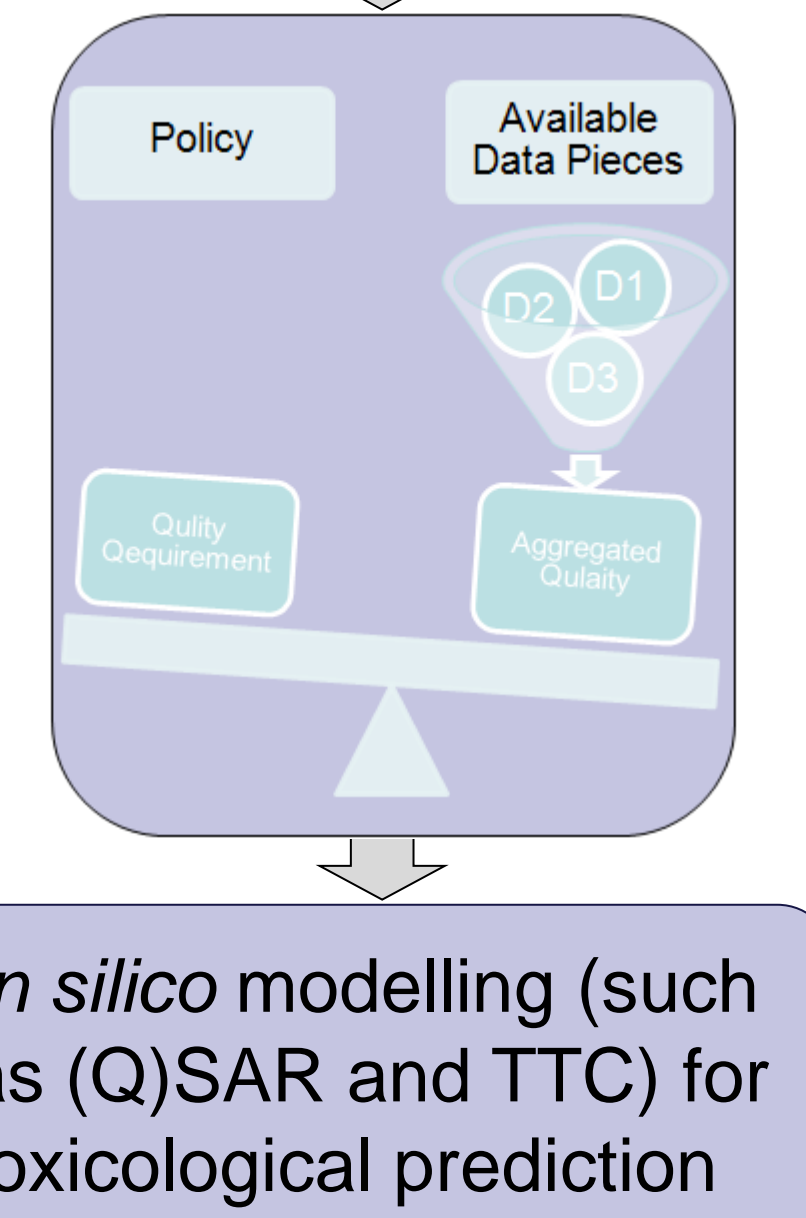
Dimensions for toxicological data quality



Decision domains of data governance for toxicological database ¹



Data Retrieving Tool



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    erDiagram
        COSMOS_LOCATION ||--o{ COSMOS_USER_WORKPLACE : "has"
        COSMOS_LOCATION ||--o{ COSMOS_GROUP : "has"
        COSMOS_LOCATION ||--o{ COSMOS_MESSAGE_BOARD : "has"
        COSMOS_LOCATION ||--o{ COSMOS_FRIEND : "has"
        COSMOS_LOCATION ||--o{ COSMOS_USER_LOG : "has"
        COSMOS_USER_WORKPLACE ||--o{ COSMOS_USER_PROFILE : "has"
        COSMOS_USER_WORKPLACE ||--o{ COSMOS_GROUP : "has"
        COSMOS_USER_WORKPLACE ||--o{ COSMOS_USER_DATA_TRIGGER : "has"
        COSMOS_USER_WORKPLACE ||--o{ COSMOS_USER_MODEL_TRIGGER : "has"
        COSMOS_USER_WORKPLACE ||--o{ COSMOS_GROUP_MEMBER : "has"
        COSMOS_USER_WORKPLACE ||--o{ COSMOS_PASSWORD : "has"
        COSMOS_USER_WORKPLACE ||--o{ COSMOS_SENSITIVE_WORD : "has"
        COSMOS_GROUP ||--o{ COSMOS_GROUP_MEMBER : "has"
        COSMOS_MESSAGE_BOARD ||--o{ COSMOS_USER_PROFILE : "has"
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        COSMOS_GROUP_MEMBER ||--o{ COSMOS_PASSWORD : "has"
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        COSMOS_SENSITIVE_WORD ||--o{ COSMOS_SENSITIVE_WORD : "has"

        COSMOS_LOCATION {
            int LOCATION_ID PK
            nvarchar ADDRESS_LINE_1
            nvarchar ADDRESS_LINE_2
            nvarchar ADDRESS_LINE_3
            nvarchar CITY
            nvarchar COUNTY
            nvarchar COUNTRY
            nvarchar POSTCODE
        }
        COSMOS_USER_WORKPLACE {
            int USER_WORKPLACE_ID PK
            nvarchar USER_WORKPLACE_NAME
            nvarchar WORKPLACE_LOCATION_ID
            int POSITION
            nvarchar POSITION_DESCRIPTION
            datetime POSITION_START_TIME
        }
        COSMOS_GROUP {
            int GROUP_ID PK
            nvarchar GROUP_NAME
            nvarchar GROUP_TYPE
            nvarchar GROUP_PICTURE
            int GROUP_CREATOR_ID
            datetime GROUP_CREATED_TIME
            nvarchar GROUP_DESCRIPTION
            nvarchar COSMOS_COMMENTS
        }
        COSMOS_GROUP_MEMBER {
            int GROUP_MEMBER_ID PK
            int GROUP_ID FK
            int MEMBER_ID FK
        }
        COSMOS_MESSAGE_BOARD {
            int MESSAGE_BOARD_ID PK
            int USER_ID FK
            nvarchar ON_INMO_BOARD
            nvarchar TO_INMO
            nvarchar IS_PRIVATE
            datetime SEND_TIME
        }
        COSMOS_FRIEND {
            int USER_ID_1 PK
            int USER_ID_2 PK
            int ARE_FRIEND
            datetime UPDATED_TIME
        }
        COSMOS_USER_LOG {
            int USER_LOG_ID PK
            int USER_ID FK
            nvarchar USER_LOGIN_TIME
            nvarchar USER_LOGIN_IP_ADDRESS
            nvarchar USER_LOGIN_PHONE_ADDRESS
            nvarchar USER_LOGIN_MAC_ADDRESS
        }
        COSMOS_USER_PROFILE {
            int USER_ID PK
            nvarchar USER_API_KEY
            nvarchar USER_EMAIL
            nvarchar USER_EMAIL_VERIFIED
            nvarchar USER_FIRSTNAME
            nvarchar USER_LASTNAME
            nvarchar USER_NICKNAME
            nvarchar USER_PICTURE
            nvarchar USER_THUMBNAIL
            nvarchar USER_SENDR
            nvarchar USER_BIRTHDAY
            nvarchar USER_WORKPLACE_ID
            nvarchar USER_POSTAL_ADDRESS_ID
            nvarchar USER_UPDATED_TIME
            nvarchar COSMOS_COMMENTS
            nvarchar COSMOS_USER_ID
        }
        COSMOS_PASSWORD {
            int COSMOS_USER_ID PK
            int USER_ID PK
            nvarchar COSMOS_PASSWORD
        }
        COSMOS_SENSITIVE_WORD {
            int COSMOS_SENSITIVE_WORD_ID PK
            int USER_ID FK
            nvarchar SENSITIVE_WORD
            nvarchar REPLACE_BY
        }
        COSMOS_USER_DATA_TRIGGER {
            int COSMOS_USER_ID PK
            int USER_ID FK
            nvarchar CFS_COMPONDING_ID
            nvarchar VISIBLE_TO
        }
        COSMOS_USER_MODEL_TRIGGER {
            int COSMOS_USER_MODEL_TRIGGER_ID PK
            int USER_ID FK
            nvarchar CFS_TO_OSM_MODEL_ID
            nvarchar VISIBLE_TO
        }
    
```

Key References

1. Fu X, Wojak A, Neagu D, Ridley M, Travis K (2011) Data governance in predictive toxicology: a review. *Journal of Cheminformatics* 3(24): 1-16
2. Yang C, Benz R, Cheeseman M (2006) Landscape of current toxicity databases and database standards. *Current Opinion in Drug Discovery & Development* 9(1): 124-133

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