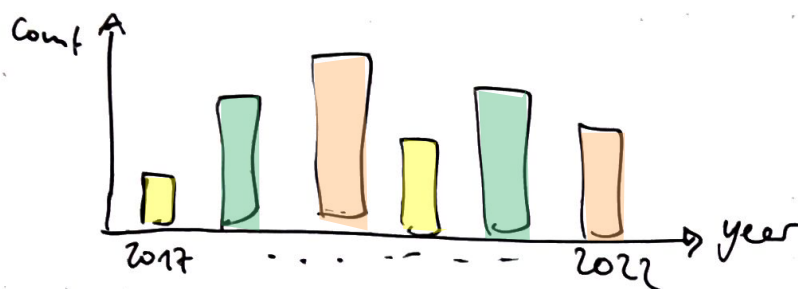


DIGITAL TWIN SECURITY SURVEY

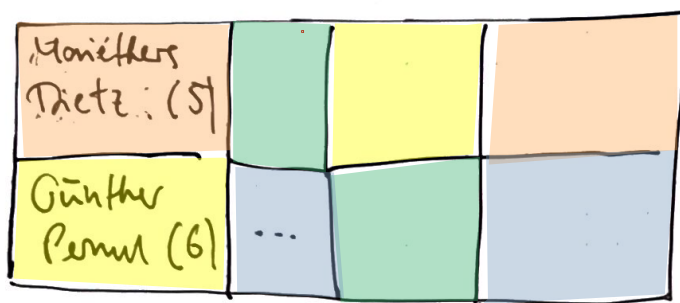
PYTHON
CHARTS

04/2022

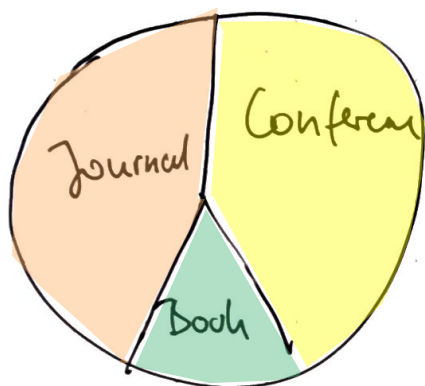
① General bibliometric data/charts



Bar chart
"Publications per year"

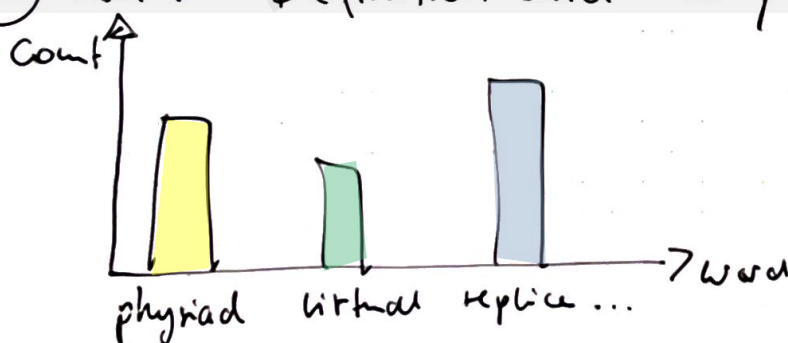


Tree map
"Authors"



Pie Chart
"Publication Type"

② RQ 1: Definition and Components



Bar chart
"Components DT"

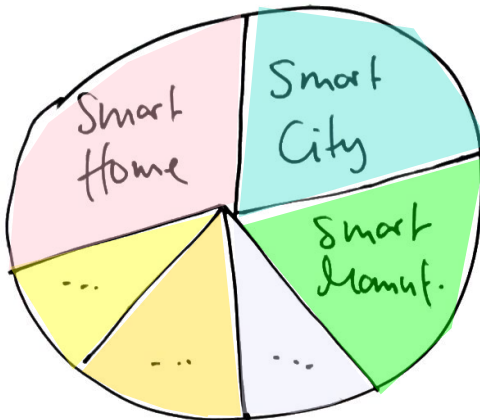
Physical	virtual
Key1 Key2 Key3	Key4

Table
"Component DT"

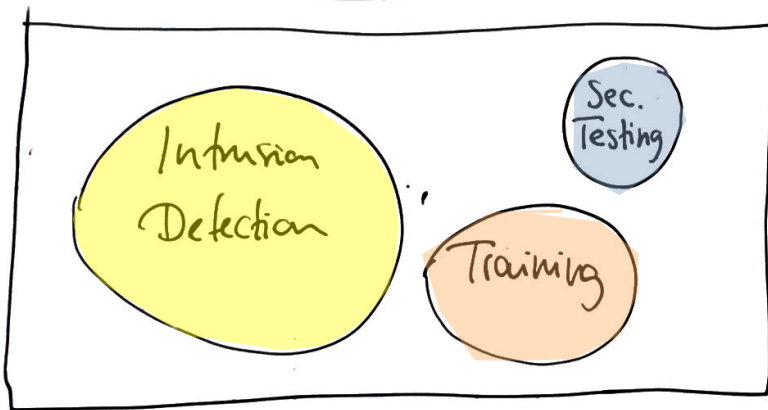
③ RQ2: Digital-Twin Application

Reason 1	Reason 2	Reason 3
Key 1 Key 2 Key 3	Key 1, Key 2	—

Table
"Application Reason"

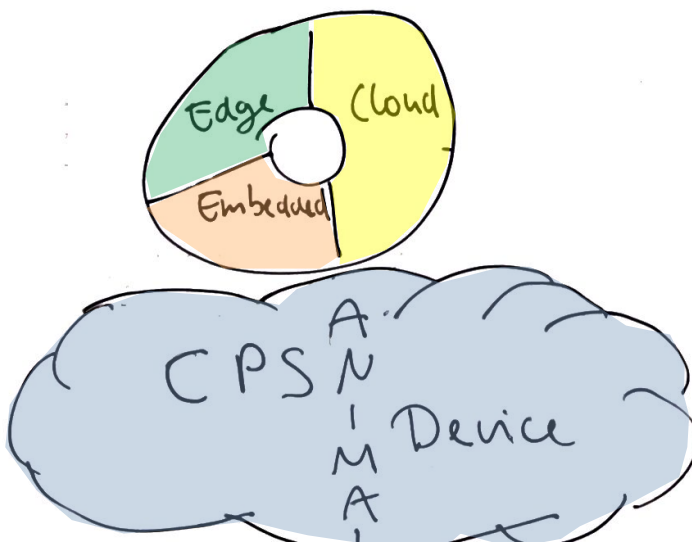


Pie chart
"Application Domain"



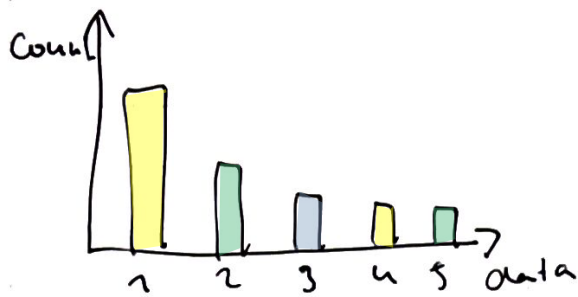
Bubble Chart
"Scenarios"

④ RQ3: Implementing Digital Twins

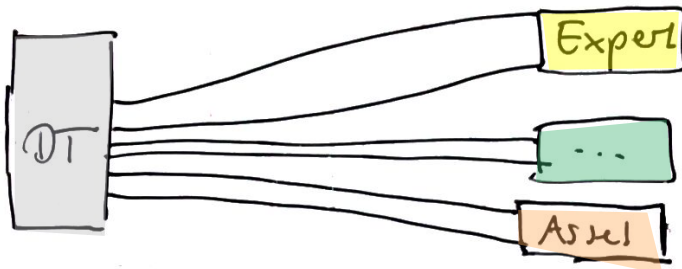


Donut chart
"Location"

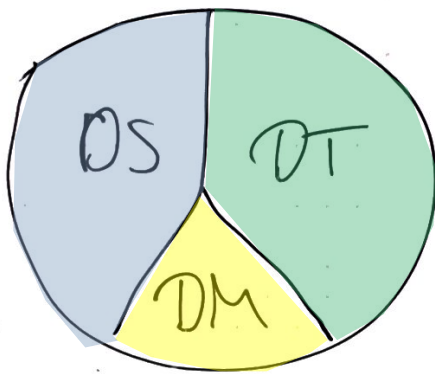
Word Cloud
"Assets"



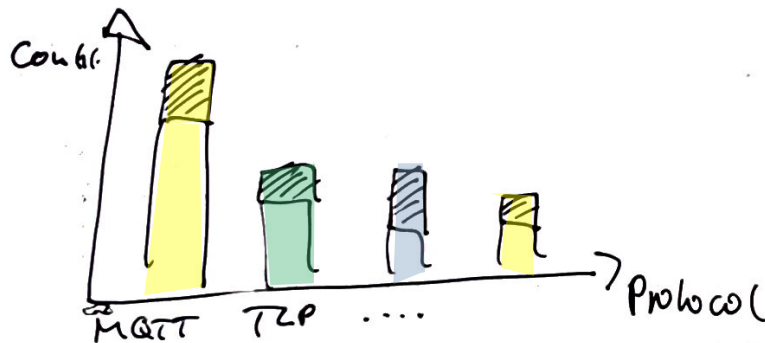
Bar Chart
"Data"



Sankey Diagram
"Communication type"



Pie Chart
"Level of integration"



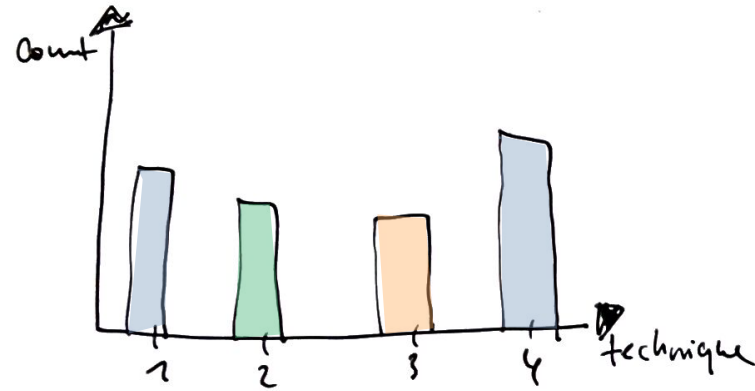
Stacked
Bar chart
"Protocols"

Tool 1	Tool 2	Tool 3

Table
"Tools used"

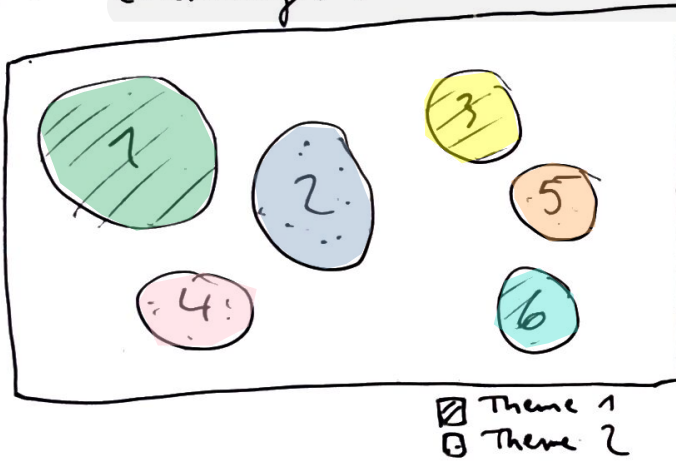
	Mode 1	Mode 2	Mode 3
Key 1	✓	✓	
Key 2	✓		✓
Key 3		✓	
Key 4			✓

Table
"operation modes"

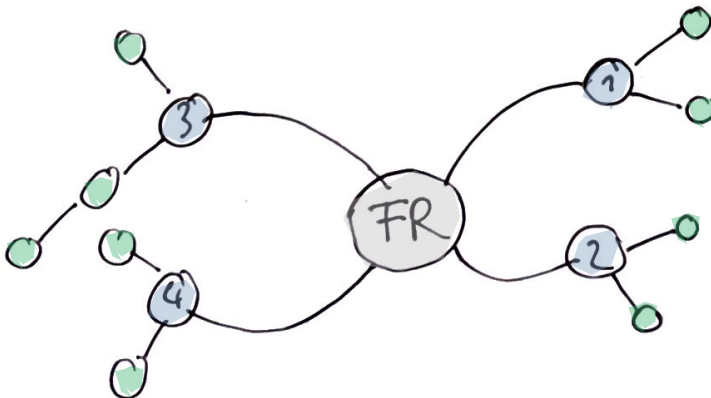


Bar plot
"DT creation"

RG4: Challenges & Future Research



Bubble Chart
"Challenges"



Mind Map
"future Research"