

# European Data Space for Smart Communities

From preparatory action to deployment

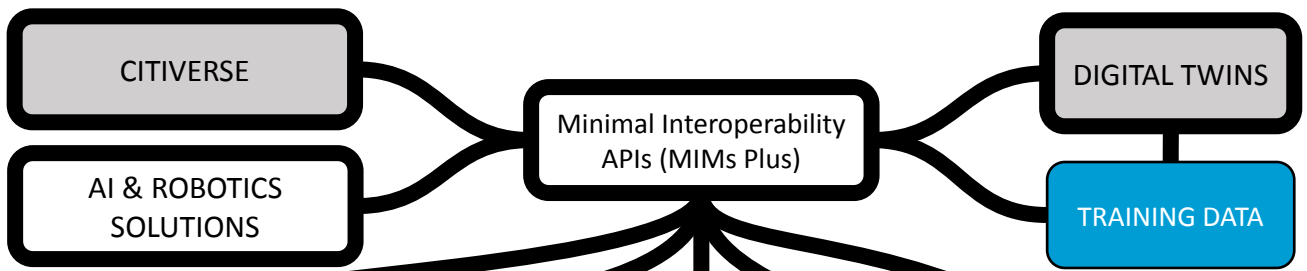
Sophie Meszaros (OASC), Elisabeth Beck Knudsen (DTU)

17.01.2024

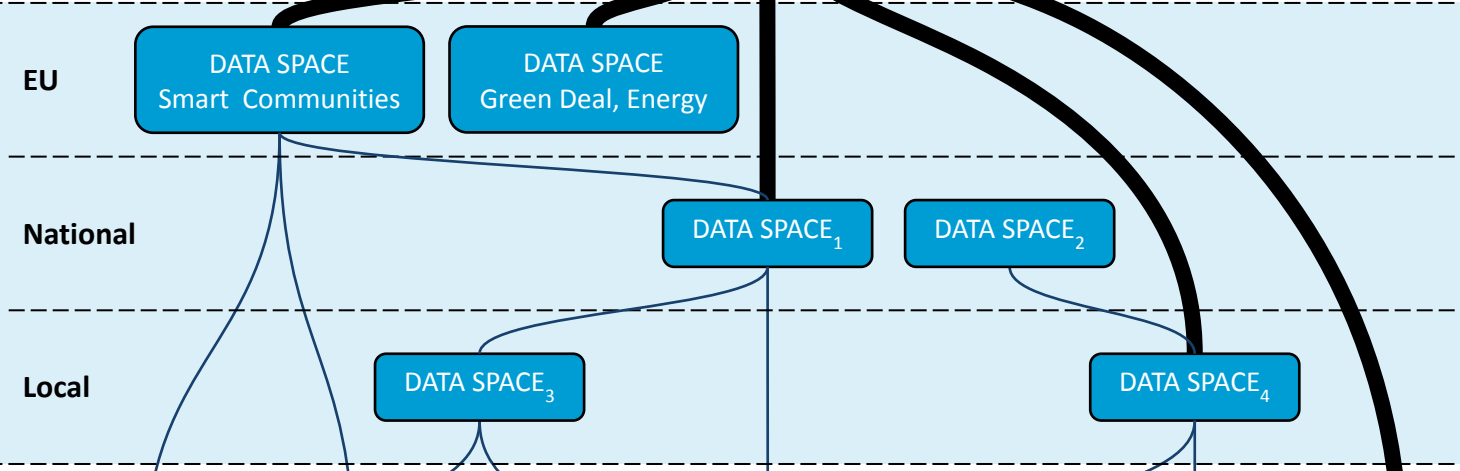


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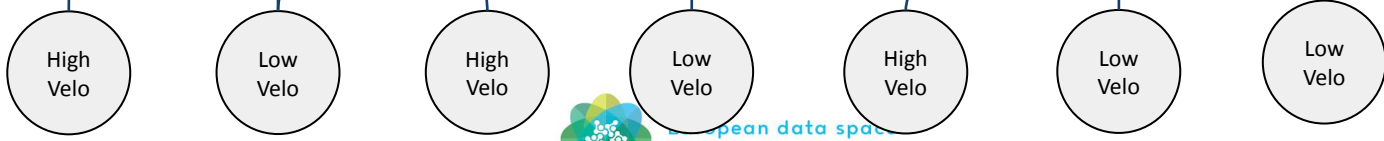
CitCom.ai TEF



Data spaces



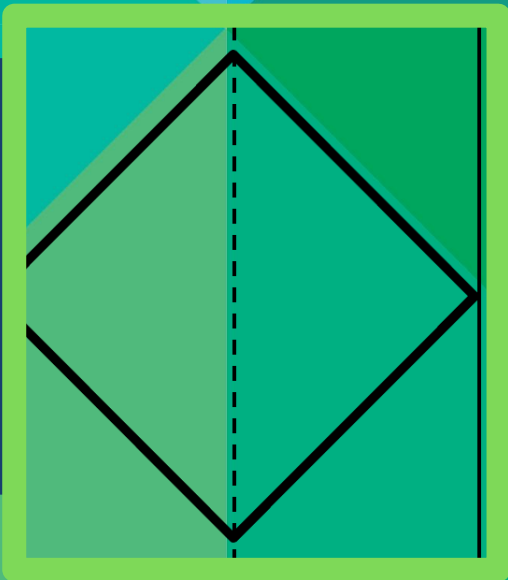
Data platforms



DATA SPACE

BLUEPRINT

DEPLOYMENT



• Kick Off: October

0

12

30

48

CONSOLIDATE

VALIDATE

TRANSITION

2022 October

2023 October

2026 October



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# The Blueprint

## Non-Technical Blueprint

- Multi-stakeholder data governance scheme
  - Business (to be further developed)
  - Legal (see Code of Conduct)
  - Organisational (see Code of Conduct)
- Developing a multi-stakeholder data cooperation for DS4SSCC

## Technical Blueprint

- Catalogue of Data Space Building Block Specifications
- Reference Architecture Model
- CookBook

Roadmap to deploy a data space



# Multi-stakeholder Governance Scheme

Why

Vision & principles

Scope & Goals

Incentives

What

Types of Data

Data Quality Insurance

Who

Stakeholders

Roles

How

Business Models

Governance Rules

Legal Frameworks

Create win-win situations and incentives for stakeholders



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# Catalogue of Specifications

- Leverage on DSSC Building Blocks taxonomy
- Aligned with Data Spaces Business Alliance (DSBA)
- Mapped to Minimal Interoperable Mechanisms (MIMs)
- Open for contributions, both standards and reference implementations

DATA SPACE FOR SMART AND SUSTAINABLE CITIES AND COMMUNITIES

HOME ABOUT CONTACT

## Catalogue of Specifications

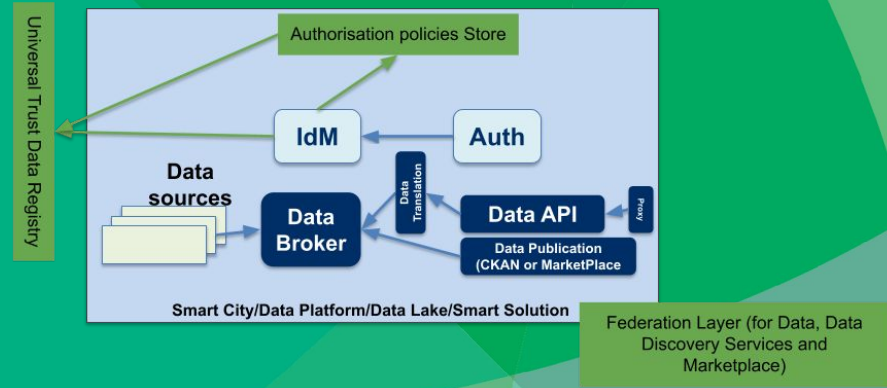
Explanation for the MIMs, the scope and the types of maturity level.

| Relevant MIMs  | Scope  | Maturity  |   |  |  |   |
|--|--|---|---|--|--|---|
| <b>Data Models</b><br>Data from different systems and organisations needs to be interpreted by participants in a data space. This requires semantic interoperability having a shared language between everyone involved. This BS provides the capabilities to def... | <b>Data Exchange</b><br>Data spaces need to address the challenge of establishing efficient and standardised data exchange mechanisms to allow that the data space participants exchange data each other. It includes a... | <b>Provenance and Traceability</b><br>In a data space or a particular transaction, it must be defined which information about this transaction is stored and how the access and the usage is regulated and controlled. This BS provides a framework for observability and mechanisms to provide evidence... | <b>Identity Management</b><br>It refers to the capability within a data space to register, maintain and use identity information about various kinds of entities that are relevant to most, if not all, members of a data space. This BS provides onboarding process into a data space for any... | <b>Trust</b><br>It is directly related to the capacity of the data space governance authority to translate its objectives into actionable sets of policies, procedures and rules and for participants to check whether others adhere to them. This BS provides mechanisms t... | <b>Access &amp; Usage policies and control</b><br>Access and Usage Policy Enforcement is a central component for data sharing to achieve data sovereignty. During a data transaction the policies need to be evaluated and decisions on access to data and services and data usage need to be taken... | <b>Data, Services and Offerings descriptions</b><br>This building block provides to data providers the tools to describe appropriately, and in a complete way, a data product, in a manner that will be understandable by any participant in the data space. It also includes related data policies and the ex... |
| <b>Publication and discovery</b><br>This building block allows data providers to publish the   | <b>Marketplaces</b><br>This building block provides marketplace capabilities, in such  | <b>Business Agreements</b><br>The business aspects of these agreements define the   | <b>Organizational and Operational agreements</b><br>Setting up a data space also requires a number of   |  |  |   |

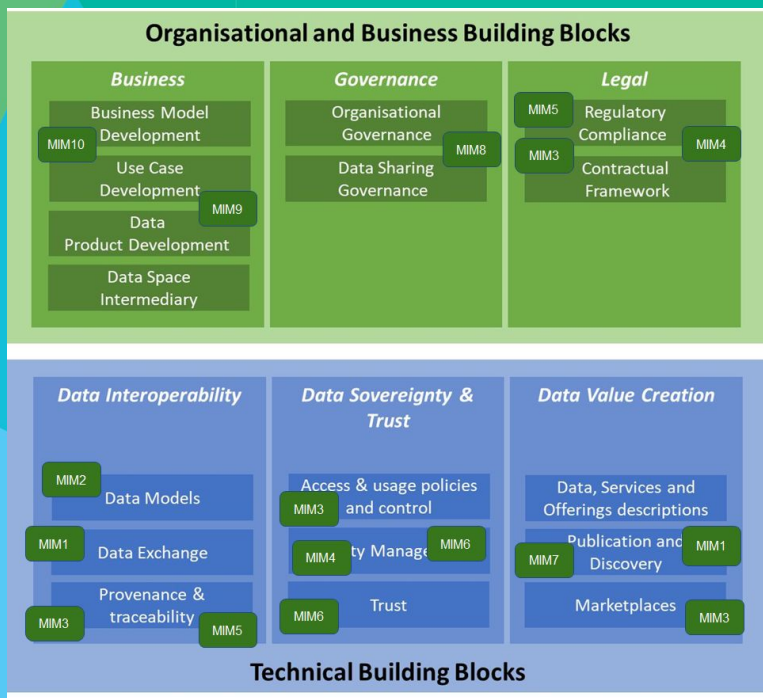


# Reference Architecture (high level)

- Use case agnostic
- Extension of existing smart city/data platforms
- Evolution of brownfield/digital twin scenarios



# Mapping data spaces building blocks with MIMs



| MIM   | Description                       |
|-------|-----------------------------------|
| MIM1  | Context Information Management    |
| MIM2  | Shared Data Models                |
| MIM3  | Ecosystem Transactions Management |
| MIM4  | Personal Data Management          |
| MIM5  | Fair Artificial Intelligence      |
| MIM6  | Security management               |
| MIM7  | Geospatial information management |
| MIM8  | Ecosystem indicator management    |
| MIM9  | Data Analytics Management         |
| MIM10 | Resource Impact Assessment        |

DS4SSCC Building Blocks are the “mechanisms” for implementing the MIMs





# CookBook

Short  
guide

Five basic steps to follow and  
pointers to material

DS4SSCC  
Cookbook

Feedback

From four customized use cases

Recipes

For each type of scenario: greenfield,  
brownfield, digital twin

FAQs

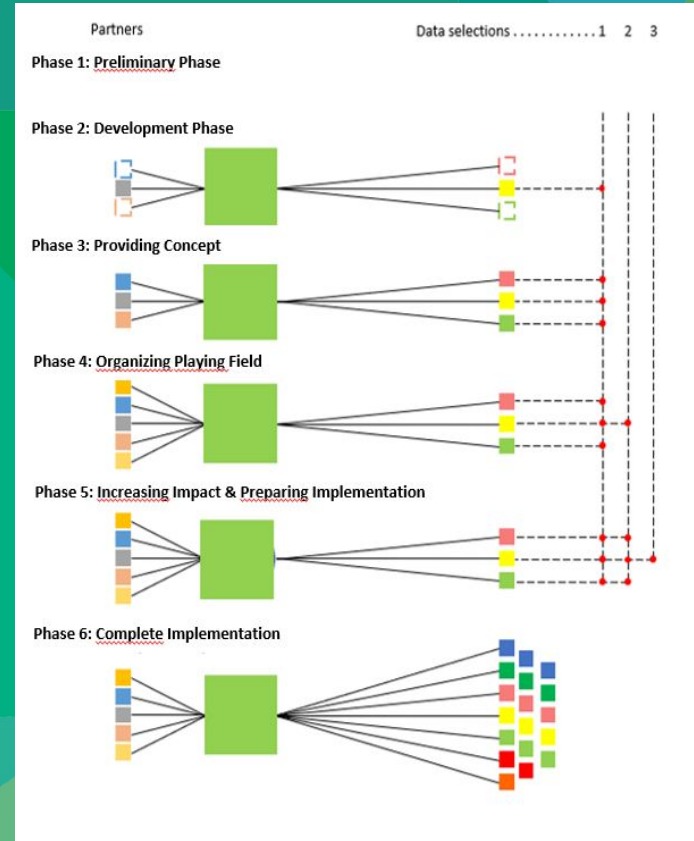
Typical questions you may wonder

[TRAINING VIDEO](#)



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# Maturity Phases - Roadmap to deploy



# The Tools Available

## Data Cooperation Canvas

- At a glance overview
- Developed together with the city of Amsterdam
- Available @ [www.ds4sscc.eu](http://www.ds4sscc.eu) & [www.datacooperationcanvas.eu](http://www.datacooperationcanvas.eu)

## Online Navigable Tool

- No need to read lengthy documents; navigate through the content
- Available on the website

## Cheat Sheet

- A checklist for data space deployment
- Covers the governance, data value and technical infrastructure milestones



# The Data Cooperation Canvas

## Organizational

### Key partners

Who are the partners involved in the data exchange? What are their roles?



### Resources

What organizational resources are required for this data cooperation? What resources are available already? What needs to be done to get all required resources?



### Business case

What are the costs of the data exchange? Who is paying? What are the revenues? Who is profiting? What compensation, fees or other financials are needed?



### Governance model

How are rules, norms and actions structured/sustained/regulated to control the data exchange?



### Current status

What is the current status of the cooperation

### Shared processes

What steps are performed as a shared process in the data exchange? What steps are done individually?

|           | Individual               | Shared                   |
|-----------|--------------------------|--------------------------|
| Use       | <input type="checkbox"/> | <input type="checkbox"/> |
| Visualise | <input type="checkbox"/> | <input type="checkbox"/> |
| Interpret | <input type="checkbox"/> | <input type="checkbox"/> |
| Combine   | <input type="checkbox"/> | <input type="checkbox"/> |
| Transform | <input type="checkbox"/> | <input type="checkbox"/> |
| Store     | <input type="checkbox"/> | <input type="checkbox"/> |
| Create    | <input type="checkbox"/> | <input type="checkbox"/> |



### Implementation model

What approach will be used for realizing and implementing the data exchange.



### Technical concepts/models

What technical concepts or models need to be in place for the data exchange. What APIs are implemented and how are they implemented?



### Technical infrastructure characteristics

What technical infrastructure is needed for the data exchange?

- What cloud/server infrastructure is used
- What technology stack is used
- What standard software is used?
- In-house development or external parties?
- Central/decentral/distributed model
- How can be connected (API, feeds, downloads, etc.)



## Why?

### Context

What is the business context that creates the opportunity/necessity for data exchange?



### Added value

Why will this data cooperation succeed? What is the added value for participants?



### Motivation & objectives

What is the motivation for the key partners to join the data exchange? What are their main objectives of participating?



## Technical

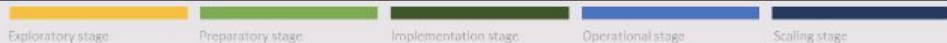
### Data & data source

What data is exchanged? What are the data sources used?

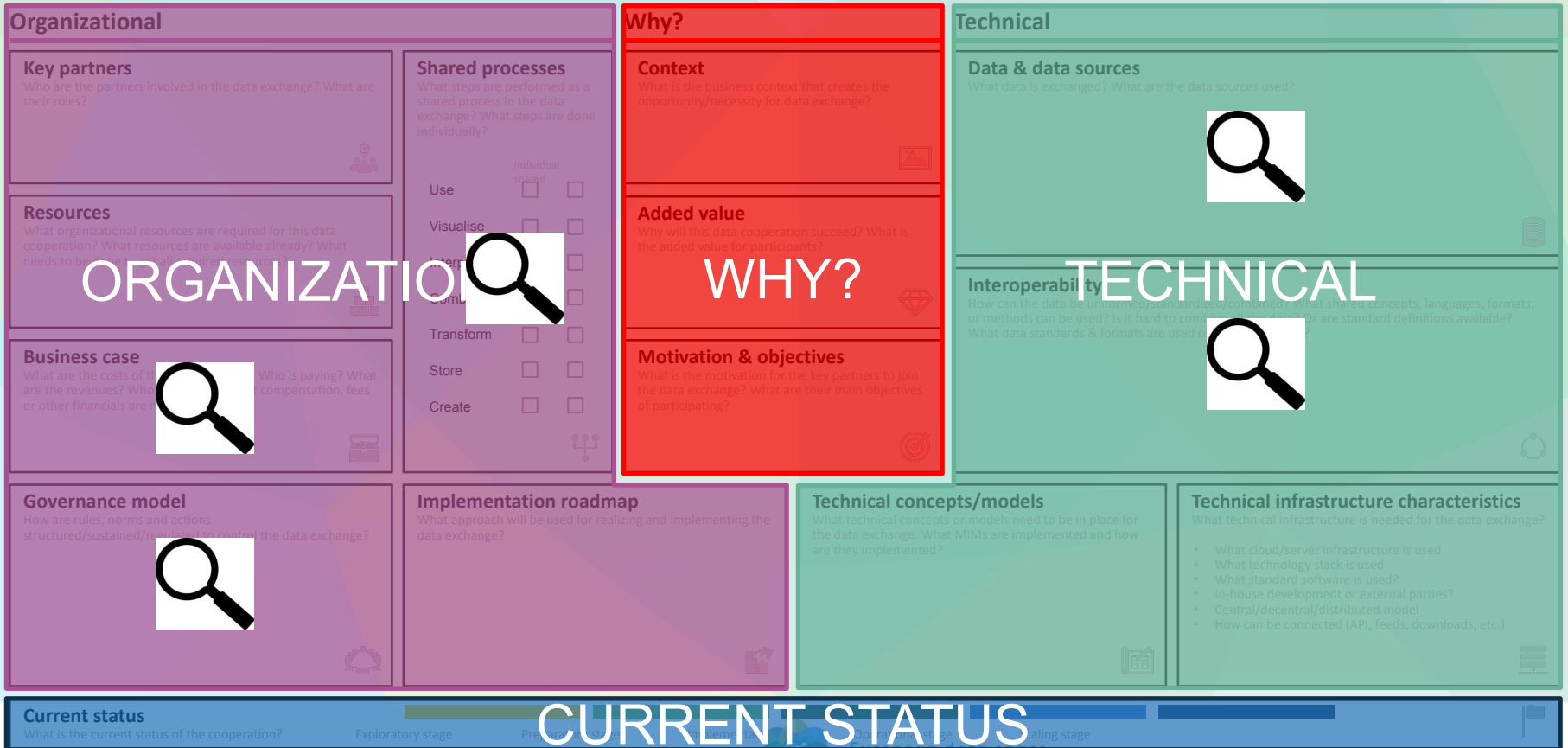


### Interoperability

How can the data be uniform/standardized/combined? What shared concepts, languages, formats, or methods can be used? Is it hard to combine all the data? Or are standard definitions available? What data standards & formats are used or need to be used?



# The Data Cooperation Canvas



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## The DS4SSCC Activities

- Data collection
- Validation
- Knowledge-sharing

Interviews

Surveys

Workshops

The DS4SSCC Stakeholder Forum



Project Updates

Best-practices

Presentations

To Define the Data Space for  
Smart communities

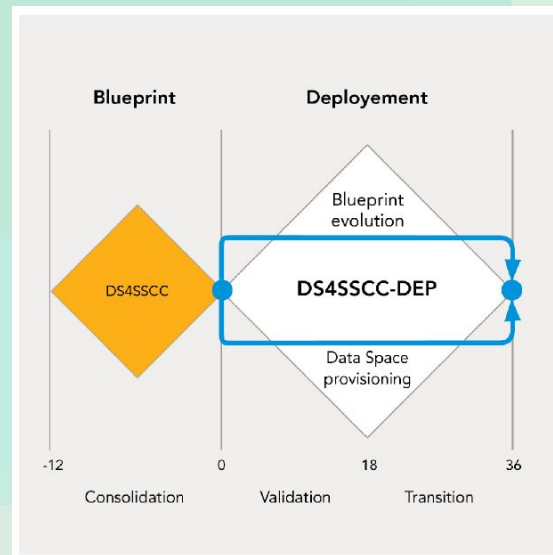
- **governance scheme,**
- **catalogue of specifications,**
- **roadmap,**
- **capacity building**



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# Blueprint Evolution and Data Space Provisioning

- The Deployment is co-funded by the Digital Europe Programme
- The aim is to create a large-scale cross-sectorial data space for smart communities in the EU
- Validation of the blueprint developed by the preparatory action
- Means of validation:
  - 10-12 real use cases
  - Open call for pilots announcement
  - Cross sectorial pilots from at least 2 member states
  - 3 rounds of calls during 2024
  - Feedback from pilots to validate and develop blueprint



# We invite you to learn more!

- **Announcement of the call for pilots (Tomorrow from 13.30-15.30 in room 4 on the 6th floor)**
  - Learn when to apply and about the support setup for pilots
- **Online session on the 24<sup>th</sup> of January 10.00-12.00 CET**
  - Information about the call for pilots
  - Meet the other interested parties online
- **Join the Stakeholder Forum to get engaged!**
  - Write to: [elbkn@dtu.dk](mailto:elbkn@dtu.dk)





# Thank you for your attention

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