



# Technology Net Project

EuropeAid @LIS  
TechNET  
Project

**Barcelona / Spain**  
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**European Commission**  
**@LIS programme supported**  
**project**

# The @LIS programme



- **Objective:** @LIS is a programme of the European Commission aiming to reinforce the partnership between the European Union and Latin America in the field of the *information society* [[http://europa.eu.int/comm/europeaid/projects/alis/index\\_en.htm](http://europa.eu.int/comm/europeaid/projects/alis/index_en.htm)].
- Approximately € 80 M funding
- divided among:
  - Standards dialogue
  - Policy dialogue
  - Coordination activities
  - Networking infrastructure
  - 19 demonstration projects
- four major areas:
  - e-Education
  - e-Governance
  - e-Health
  - e-Inclusion



## TechNET

- @LIS demonstration project
- e-Education area
- 30 month duration
- started: 1<sup>st</sup> October 2003
- approximately €2.5 M funding



# TechNET partners



- Universitat Politècnica de Catalunya
  - Barcelona, Spain
- University of Bath
  - Bath, United Kingdom
- Universidad de Costa Rica
  - San Jose, Costa Rica
- Instituto Superior Politécnico José Antonio Echeverría
  - Havana, Cuba
- University of Parma
  - Parma, Italy
- Instituto Politécnico Nacional (centro de investigación en computación)
  - Ciudad de México, Mexico
- Instituto Tecnológico y de estudios Superiores de Monterrey
  - Ciudad de México, Mexico
- Universidad Tecnológica Metropolitana
  - Santiago, Chile

- New generations of Internet technology
  - Web services
  - Semantic Web
  - Peer-2-peer networks
- Changing interactions
  - from *client-server* and *human browsing*
  - to *automated machine-machine*
- => a new way of thinking about systems
- Europe (and the US):
  - is expending a great deal of R&D effort in these areas
  - is already rolling out some technologies
  - is looking for productivity gains
- This brings new opportunities but also new needs:
  - New understanding needed
  - New methods of teaching needed – in particular hands on mechanisms
  - New partnerships needed
- Will the digital divide widen or narrow?

- Move from ...
  - Passive systems
  - Hard-coded content
  - Single use
- ... to
  - Automated software (actively trying to serve user needs)
  - Flexible data representations (reducing creation/integration costs)
  - Dynamic composition (optimising data/services for repeated use)
- Potential to:
  - Reduce costs
  - Empower people to more easily advertise their skills/services
  - Create business/social opportunities
- But:
  - We change from building HTML to a range of new technologies
  - The *nature* of the system

These Challenges are even more acute in Latin America.

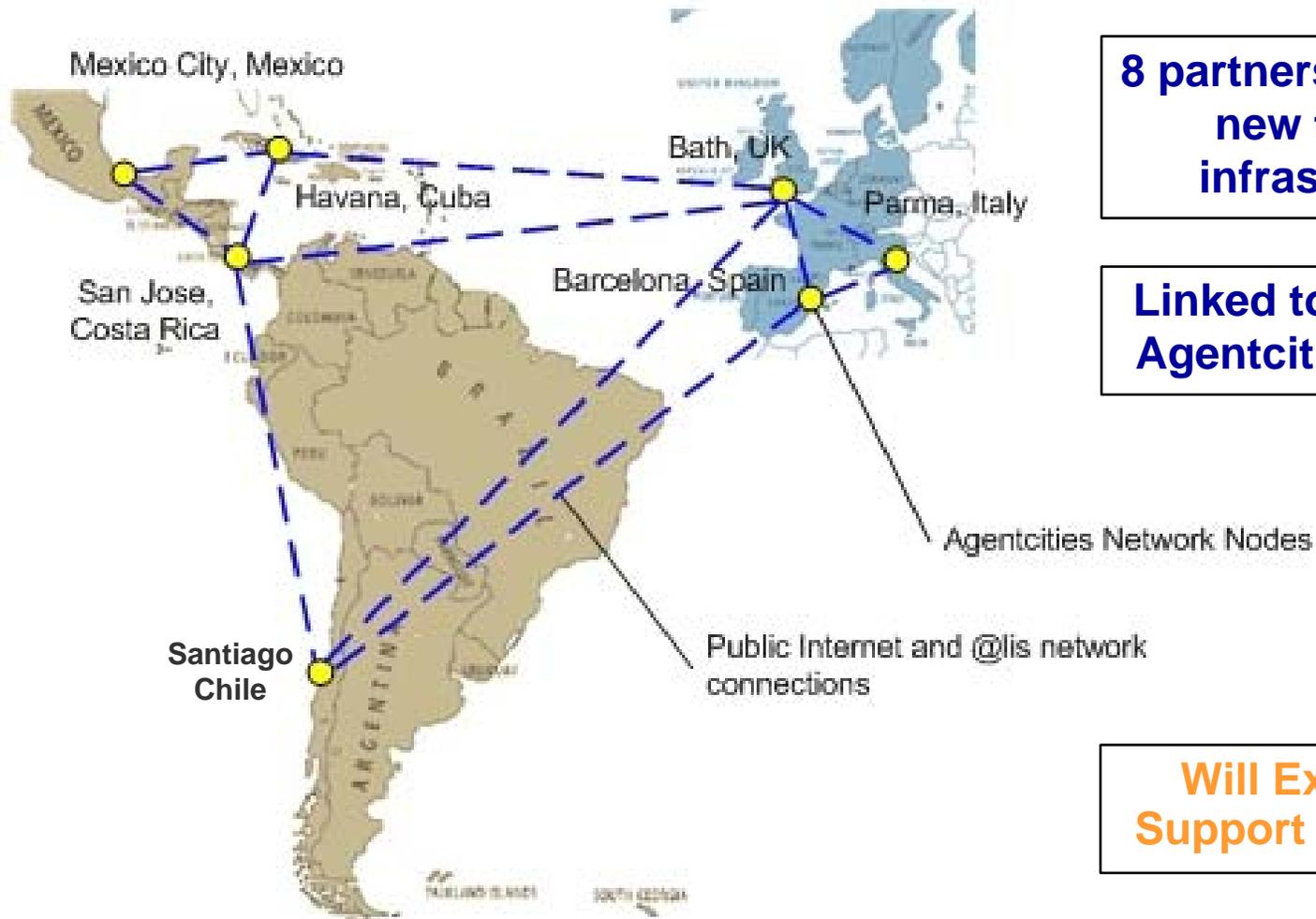
understand the  
and the traps)

# TechNET Project Objectives



- Create awareness and understanding of these new generations of Web/Internet technologies
  - By creating a live, openly accessible technology testbed
  - Linking researchers/professors in Europe and Latin America
- Create opportunities for Latin American and European students to learn about these technologies – and how they might be employed
  - Create an innovative on-line teaching environment
  - Enabling on-line interactions and hands-on joint learning
- Demonstrate possibilities in the vital business/social area of Cultural/Tourism applications
  - Enabling industry and professionals to assess potential

# Technet Network



**8 partners linked with new testbed infrastructure**

**Linked to the Global Agencities Testbed**

**Will Extend and Support Agencities**

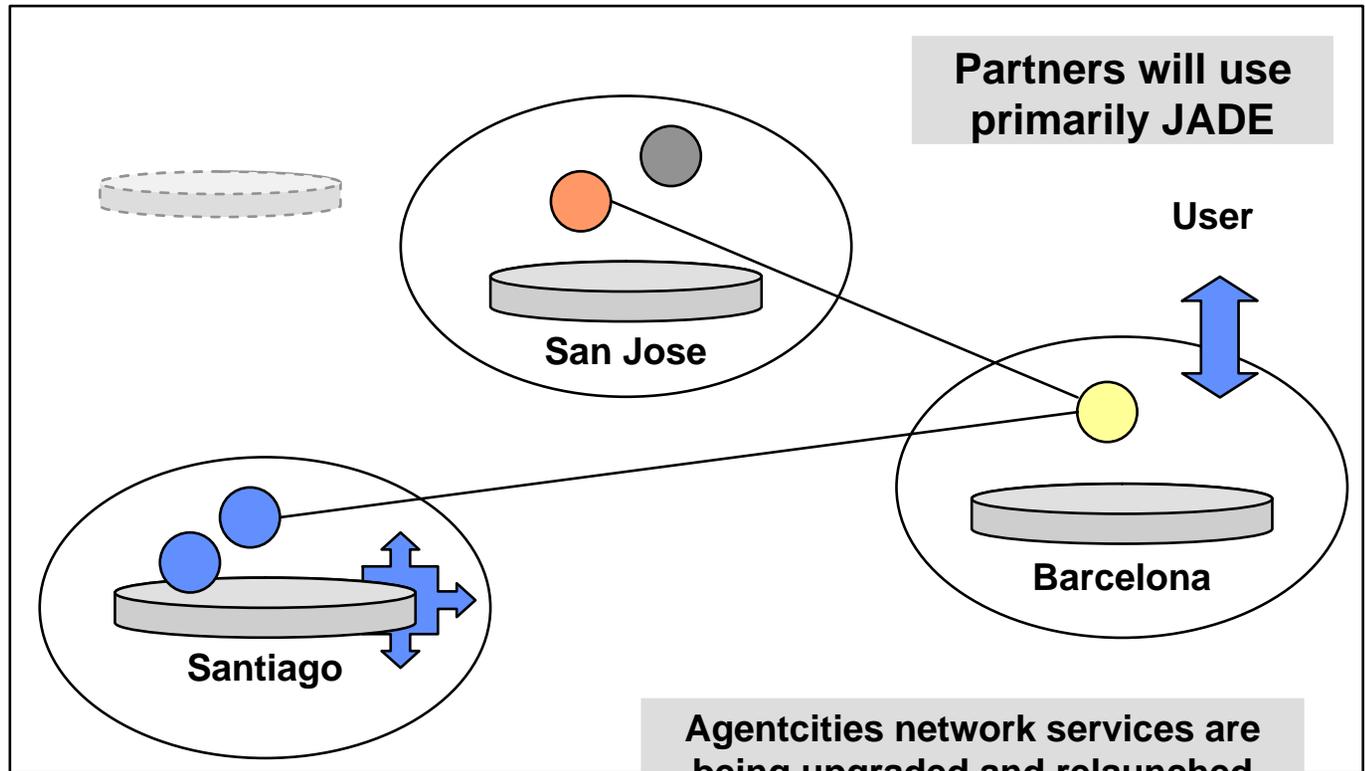


# Main Outcomes



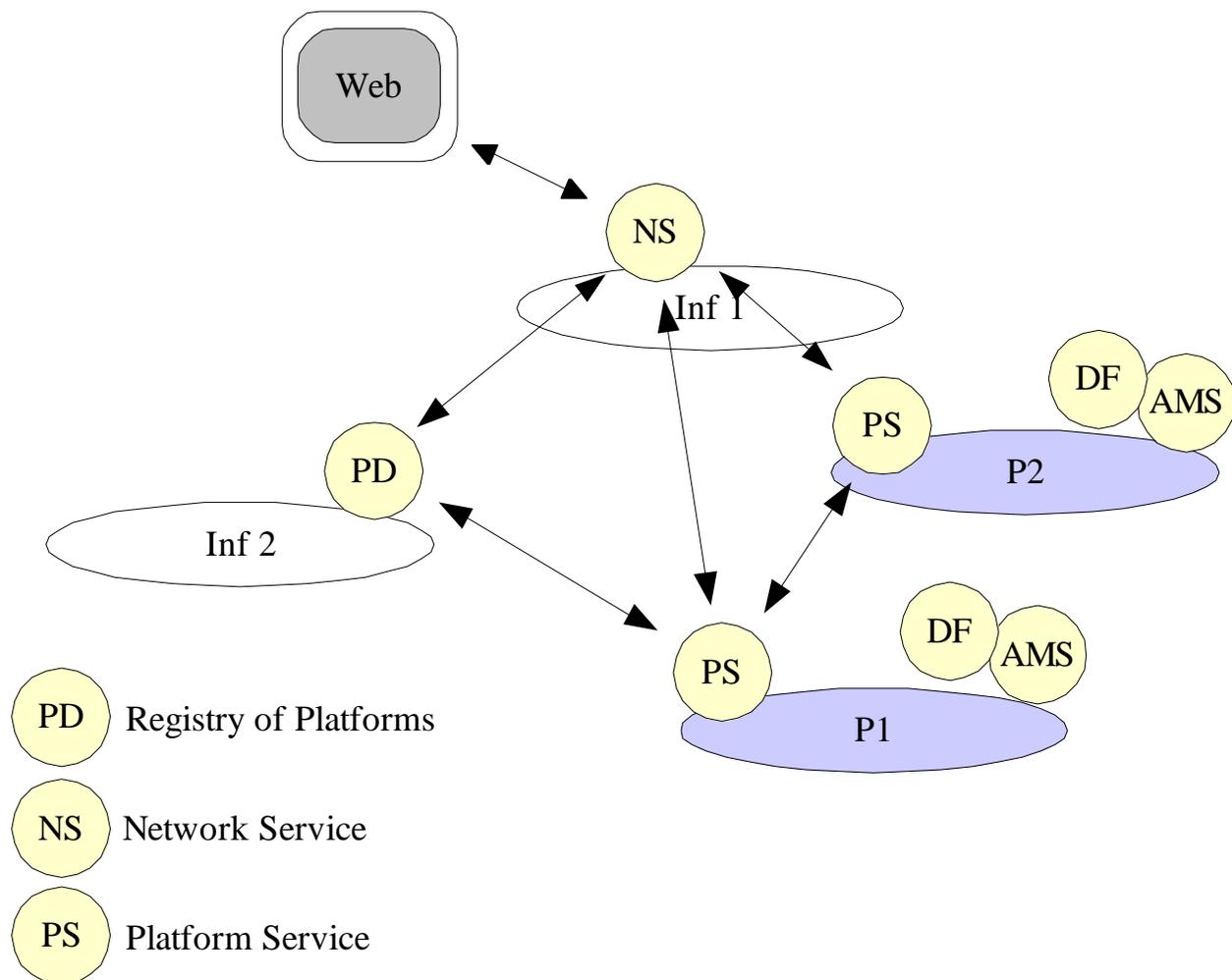
- Testbed Infrastructure
  - Deployed nodes at all partners and network services
  - Technology frameworks and free (open source) software for all elements
  - Support for a wide range of application areas (teaching, research, experimentation)
- Teaching Environment
  - Teaching materials (curricula, exercises, model solutions)
  - Online collaboration tools for student interaction (chat, IM, web collaboration)
  - Synchronised academic courses among institutions
- Tourism Demonstrators
  - Series of cultural heritage services, drawing on content from all partner countries (and perhaps third parties)
  - Personalised, dynamically constructed views of possibilities, for users

# Infrastructure: agent platforms



- First-generation Agentcities services:
  - Centralized data-entry and storage for platforms
  - Star topology
  - Weak monitoring and tracking
- Second-generation @LIS services:
  - Platform data decentralized
  - Separate platform, agent and service directories
  - Improved monitoring
- New structure allows
  - Platforms to locally hold all their configuration data
  - Anyone to host a sub-domain of named platforms
  - Anyone to host a monitoring station to gather network data
  - Platforms to test each other
- Open Source (BSD) implementations will be available for all components

- A hierarchical platform directory
- PS services represent platforms
- NS services monitor platforms / gather test data



# @LIS TechNET draft infrastructure documents



- Recommendations can be found at:

- <http://www.agentcities.org/rec>

- Specifically relevant are:

- 00006 "Integrating Web Services"
- 00008 "Network Monitoring Service"
- 00009 "Platform Directory"
- 00010 "Agent Directory (available...)"
- 00011 "Service Directory"
- 00012 "ACL-Ping Protocol"

- They build on the FIPA Specific

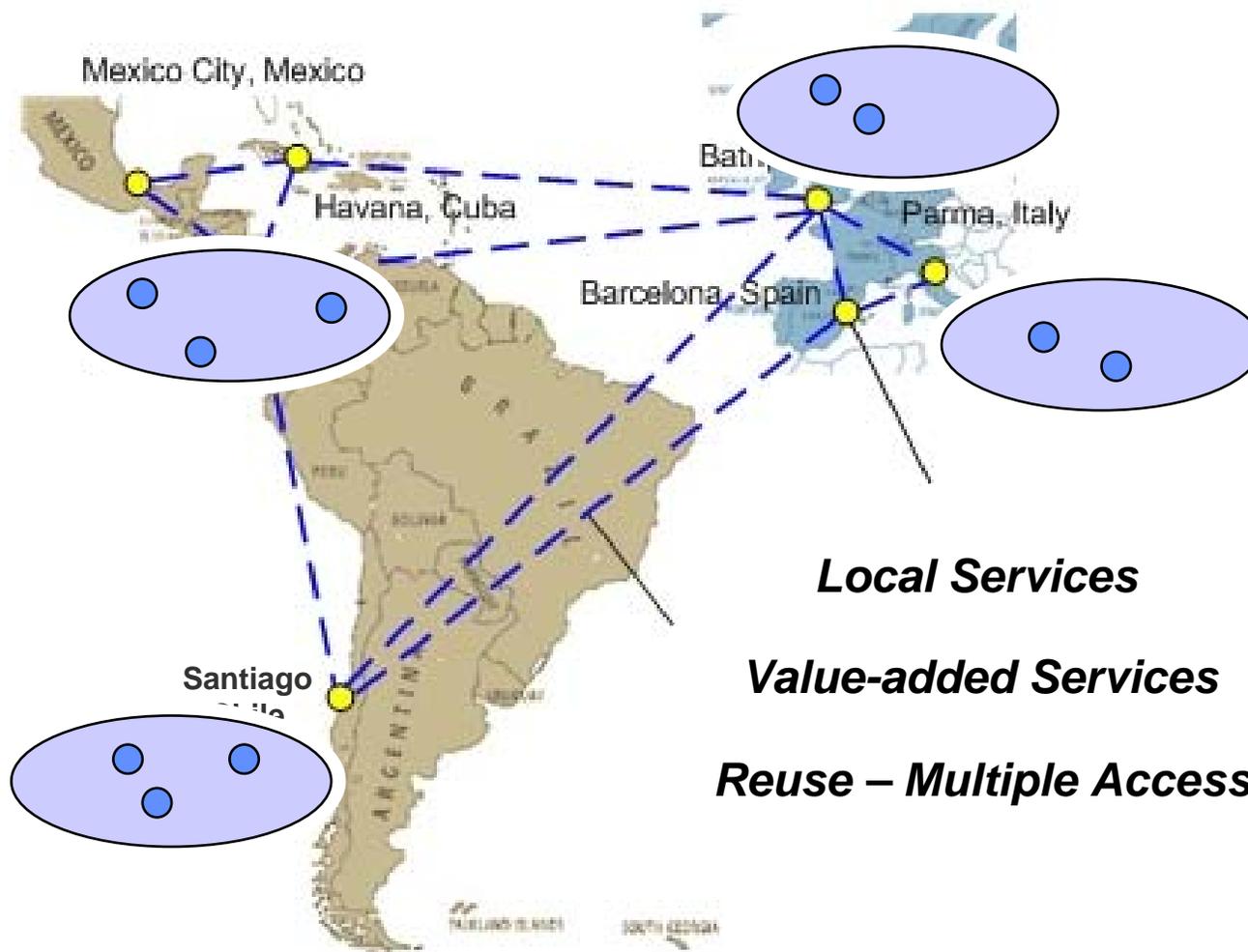
Expected launch: end of March,  
including:

Open source implementations  
Supported network services

Gradual transition from  
first-generation Agentcities  
services

- Each Partner has its own platform and local resources.
- Students
  - Use open source toolkits to create Agents/Services
  - Follow practical exercises, which teach them the different skills they need:
    - Modeling services / data / interactions
    - Building software
    - Interacting with other services
  - Collaboration tools allow them to interact with students from other universities
- Joint exercises span multiple partners
  - Services can discover one another and communicate; challenges and competitions are used to motivate activity and explore complex issues

# Cultural heritage, Sustainable tourism Demonstrations



**Basic services:**  
Monuments  
Tours  
Special Interest  
Crafts  
Local Firms  
...  
Weather  
Restaurants

**Compose with:**  
Ratings Services  
Planners  
Recommenders  
Personalisation

**Access via:**  
Wireline (PC/NET)  
Wireless (PDA)

# Cultural heritage, Sustainable tourism

## Demonstrations: use case



- Alejandro, from Bath, is **planning a trip** to Costa Rica and Mexico for himself and his boyfriend Dan, who lives in Barcelona. Both are keen to **visit a variety of places** and **do specific activities**. One of the Internet tools Alejandro uses for planning is the **TechNET travel assistant**. The assistant is able to **build up an itinerary** for the trip suggesting resources, events and places to go **based on the preferences entered**.
- The information in TechNET comes from many different services updated by local travel agencies, hotels, venues. TechNET **dynamically composes this information according the constraints of the trip**. Different providers can supply competing services and Alejandro is able to select which information he trusts most or simply see all proposals. The system keeps track of the itinerary and bookings made. As the information sources change, **TechNET discovers the changes** and updates its travel assistant's knowledge, pointing out gaps or problems to the travelers.
- During the trip, Alejandro and Dan regularly log into TechNET from **Internet cafes or their wireless PDAs** to check their trip details and find out additional **personalized information**. The system reschedules bookings if necessary and dynamically links in new information about upcoming destinations; information such as storm warning or new events which have only just been advertised.

# Cultural heritage, Sustainable tourism

## Demonstrations: main agents



- Personal Assistant (PA):
  - is the only interface with the system for the human user
  - keeps and updates the user profile
- Global Travel Assistant (GTA):
  - is the highest-level service
  - receives queries and requirements from the PA
- Local Itinerary Supervisor (LIS):
  - is in charge of defining and supervising local itineraries, which are basically sequences of geographically-defined **tourist packages**

# Approximate Timeline & Wider Context



- 2.5 year project
- Test-bed Infrastructure
  - Linking all project partners [*Mid 2004*]
  - Supported open access [*Late 2004*]
- Teaching Environment
  - First courses [*Late 2004*]
  - Support for third party participation [*Mid 2005*]
- Cultural Heritage Demonstrations
  - First public demonstrations [*Mid 2005*]
  - Final demonstrations [*Early 2006*]
- Agencities/openNet test-bed
  - 100+ organizations involved worldwide
- A range of new projects using the Agencities test-bed:
  - Agencities.ES
  - Agencities.UK
  - ANEMONE
  - Agent.Hospital
  - Agent.Enterprise
- @LIS will work with Agencities/openNet to keep building the test-bed infrastructure

# Conclusions & Collaboration



- The TechNET project will produce three concrete outcomes
  - Infrastructure
    - Access for researchers, professors and students
  - Teaching Environment
    - An online, hands-on learning environment
  - Demonstration
    - For industry (and the public) to assess potential
- Aim to contribute to FIPA where possible:
  - Infrastructure experience
  - Input to standards
  - Teaching material
  - Application demonstrations
- Also looking forward to:
  - Supporting contributions to JADE / JADE Board
  - Working with others in the context of Agentcities/openNet

# Thanks and Acknowledgements



- Thank you for your attention (even without condensation fade) and the opportunity to present!
- Acknowledgements:
  - The work presented here has been carried out with the assistance of the European Union.
  - The contents of the presentation however are the sole responsibility of the authors and do not necessarily reflect the views of the European Union.

# Useful Links



- Project Web Site
  - <http://www.alis-technet.org/>
- EuropeAid
  - <http://europa.eu.int/comm/europeaid/>
- @LIS Program
  - <http://europa.eu.int/comm/europeaid/projects/alis/>