Agenda

• Introduction of the participants
• Introduction of the U-STIR project
• Basic facts on innovation, methods and tools
• Workshop to describe the innovation climate in Austria
What is U-STIR about?

Objectives of U-STIR:

- define know-how and technologies to address Europe’s surface transport problems beyond 2050
- stimulate radical technological changes by supporting the development and capture of know how
- Creating an innovation friendly climate
- Enabling co-operation between highly qualified research entities and creative individuals
- Triggering the development of innovative solutions by introducing radical new ways of thinking and innovation support systems
- Avoiding technological ‘white elephants’
- Pushing transport solutions into the overlapping area of economic, ecologic and social optima.
What you will get from U-STIR in the end

- Strategic decision support
- Background knowledge about innovation (e.g. methods to create and evaluate innovative ideas, successful strategies to support innovations during the whole life-cycle)
- Pressure group for innovation support
- Evaluated concepts (e.g. good-practice examples as a basis for your funding strategy and efficient funding programme development)
- Networking possibilities with researchers; funding constitutions and the industry
- Introduction of innovators
How you won't reach innovation

http://www.youtube.com/watch?v=tJSIRyQfho4
Aim of todays Workshop (WP3)

Aim of U-STIR

• Information exchange between participants
• Information gathering, get to know the innovative situation in the country
• Focus on solutions – disseminate the project results

Aim of the participants?
• ...

© by FGM
Types of innovation

- Service design innovation
- Innovative diffusion of an innovation
- A new technical concept
- (A refining of an existing technical concept)
- Other?
What is Radical Innovation (RI)?

Radical (or breakthrough) innovation:
- is a highly innovative product or service which includes new and complex technologies;
- builds new markets or changes existent market structures;
- heavily affects user behaviour;
- is characterized by long-term (typically ten years or more) development time;
- is uncertain and unpredictable (i.e. it is risky).
- with unprecedented performance features or with already familiar features that offer potential for a 5–10 x (or greater) improvement in performance, or a 30–50% (or greater) reduction in cost" (O'Connor and McDermott, 2004)
What is Radical Innovation (RI)?

![Diagram showing the lifecycle of product innovation and process innovation](image)

**Cumulative sales**

- **Introduction**
- **Growth**
- **Maturity**
- **Decline** (old product)

**Introduction new product/new market**

**Dominant design gets selected**

**Substituting product innovation/process innovation**

**Competition between different product innovations**

**Product innovation**
- Radical
- Incremental
- Incremental
- Radical/incremental

**Process innovation**
- Incremental
- Radical
- Incremental
- Incremental/radical

**Learning requirements**
- High
- High
- Low
- High

**Time**

Source: Elaborated from [13]
Benefits for radical innovators

- Benefits of first movers implementing radical innovation
- Win market share rapidly
- Enjoy scale and experience economies
- Be the first to use scarce resources, such as primary location you acquire
What is the Lead User Theory?

• Lead Users can be individuals, networks, community groups or enterprises who are the users of transport technologies and services.
• Lead Users are not the manufacturers or providers of transport technologies or service.
• Lead Users are also not public authorities exercising their transport policy, funding or regulatory role.
• But the latter may be a Lead User through another role (e.g. as a vehicle fleet operator)
Overview of Topics – Where to start?

- Tools
- Funding
- User Involvement
- IP-Sourcing
- Concepts / Methods
- Innovation Approach
Structured Approach

Integrated Strategy

Generate Commitment
 Reduce Innovation Barriers by Discussing with National Stakeholders
 Create RTD Excellence by Defining Quality and Giving Support for Improvement
 Support Adaptation of National (non RTD) Funding Schemes/Incentives
 Enable Horizontal and Vertical Co-Operation

Spark Inspiration and innovation in Events/WS with lead users/researchers
 Market Knowledge
 Map Demand
 Map Knowledge
 Map Deficiencies
 Innovation Support Network
 IP-handling
 Exploitation

Initiate Talks on a Vertical Level
 Develop Strategic Co-operations Amongst Researchers

u-stir User Driven Stimulation of Radical New Technological Steps in Surface Transport
Selecting an Innovation Scheme

Understanding the RI market

- **Corporate (Corporation-led projects)**
  - Example: HEVs

- **Innovative (Start-up projects)**
  - Example: Titting Trikes

- **Collaborative (Academic-led projects)**
  - Example: Solar or H₂ Racer

- **Communitary (Community-led development)**
  - Examples: Pedelec Testing

Effort for Imitating vs. Market size

u-stir: User Driven Stimulation of Radical New Technological Steps in Surface Transport
What are the (bottom up) alternatives for entrepreneurs?

**Characteristics**
- Crowd Sourcing allows solvers to propose solutions (disclosing the problem to them on a personal basis)
- Occasional Collaboration searches for co-researches for specific tasks/projects
- Inhouse Research sponsors own RTD
- Buy Patents/IP analyses patents or tenders out solution finding

**Decision Criteria**
- SWOT
- IP Balance
- USP Core Technology?
- ....

© by FGM
IP Sourcing
Technology in R&D
Strategic needs translate into technological innovation over innovative applications
2nd step IP-Sourcing – where to search

Probability to find IP about:

**Battery**
- USA 34
- France 171
- Japan 672
- China 866
- Germany 94
- Others 152

**Telecom**
- Korea 95
- USA 515
- Japan 1154
- China 790
- Germany 220
- Others 343

**Security**
- France 73
- USA 269
- Japan 844
- China 2067
- Germany 282
- Others 324

© by TKM
What are the top down concepts?

- Technology Foresight defining targets content wise
- Continuous support of the innovation process – step by step
- Stimulation – RTD - implementation
USER INVOLVEMENT
The role of users in innovation

- User-led service innovations are perhaps easier to implement than user-led transport technologies which require major investment and large institutions.
- Role of user in innovation diffusion may be more important in shaping technological trajectories and embedding of innovation.

The man responsible for one of the breakthrough ideas that led to the klunker and then to the mountain bike was Russ Mahon of the Morrow Dirt Club. Mahon and two friends turned up at the 1974 West Coast Cyclocross Championships on clunkers with gears and, most importantly, thumbshifter gear levers. After finishing mid-pack and showing their bikes to the Marin klunker crowd, Mahon and his friends vanished.
Roles

• Active
  – Modding
  – DIY
  – Claims/requirements

• Passive
  – Analytical (survey)
  – Focus groups
Triggering Creativity

- Classification of tools
- Path to happiness...

---

Fact finding
- Word Diamond
- Mind map
- Brain Writing
- Role Storming
- Reversal
- TRIZ

Problem finding
- Wishful Thinking
- Storytelling

Solution finding
- Concepturizing
- Sociodrama
- Optimizing
- Actionplan

Idea finding
- Dreaming Mode
- Brain Storming
- Metaphor

Acceptance finding

Finish 1

Finish 2
• ODI (Outcome driven innovation) is a methodology concept designed by Tony Ulwick
• It can also be applied for problems in the transport industry
• It is not based on a simple idea of the development team but is based on under- or overfilled desires of customer groups
• It supplies a definition of customer needs to develop new products / services or further develop them
• It offers a rigorous, controlled approach to collecting needs statements, to formulating growth strategies and to generating and validating breakthrough ideas
• It defines the problem/requirements based on the requirements of the market and the task the market wants to solve with the solution – the formulation of the problem does not contain the solution
• Example of defining users needs based on the requirements – the solution/technology changes in time, the job/purpose/task remains the same.
• Requirements are listed according to customer surveys by relevance in top 10 table. In a workshop with experts and lead users the most important requirement is analysed and a concept ready for specification for the innovation is elaborated.

See [www.strategyn.com](http://www.strategyn.com) for more information
The Advanced Radical Innovation (ARI) methodology
• is a guided process consisting of a set of tools
• helping researchers and innovators to bring radical innovation to market commercialisation.
• More details on the methodology, including questionnaires, guidelines etc. can be found on
  http://www.wrhip.org/resources-mainmenu-21/documents/cat_view/61-ari

Triggering Creativity – free online tools

- Find useful links to online webtools on the U-STIR Website
- Make use of the Creativity tool – a TRIZ database especially designed to meet the demands of the transport industry. This tool stimulates your creative and lateral thinking
Workshop phase for WP 3 workshops
What are your experiences?

• Innovation situation / climate in our country
  – What are the main barriers for innovation in the country?
  – Is there a message to the EU with regards to support of local initiatives?
  – Which creativity tools / creative thinking methods are applied?
  – Which approaches will have a future in the transport industry in our country (e.g. lead user)?

• National system for funding radical innovation
  – Is the approach of radical innovation understood, is there radical innovation happening, is there enough support in all phases?
  – What are the plans for improving innovation in the country and how?