



**University of Natural Resources and
Applied Life Sciences, Vienna**
Department of Landscape, Spatial and
Infrastructure Sciences

Climate change in winter sport - a new approach to transdisciplinary research and implementation

Univ. Prof. DI Dr. Ulrike Pröbstl
DI Wiebke Unbehaun
Institute of Landscape Development, Recreation
and Conservation Planning

Relevance of winter (sport) tourism in Austria



- Austria's winter tourism is highly linked with winter sport activities;
- Ca. 57 Mio. over-night stays in the winter season;
- a yearly average of 150.000 employees in tourism (~5 % of the Austrian employees);
- 70 % of the guest beds are in destinations on lower altitudes than 1.000 m;
- revenues in winter sport tourism are highly temporal and spatial concentrated;
- the number of overnight stays is already stagnating;
- increasing interest of the alpine communities and regions for climate change scenarios and their further development prospects;

2. Brainstorming: some aspects ...

- Adaptation of models of climate change scenarios to the local conditions
- Including local knowledge (e.g. on local climatic conditions)
- Compensation via artificial snow ?
- Attitudes of the ski enthusiasts related to snow conditions
- Role of the media
- Destination management and local players, stakeholders
- Compensation of insufficient snow conditions developing other touristical products
- Reliability of investments in winter sport facilities
- Choice and preferences of the tourists
- How to implement a sustainable tourism development?
-



What is Transdisciplinarity?

- To find solutions in cooperation of Sciences, consultants and planners, local decision makers and community;
- Transdisciplinary work is a special strategy of interdisciplinary work that integrates non scientific and scientific consultants in research in a practice relevant project;
- It is a problem oriented research approach that helps to identify and prevent further problems and contributes to sustainable solutions for unresolved social problems;
- Characteristics of transdisciplinary research:
 - Discipline independent comprehension and definition of problems;
 - Fragmentation of problems with the aim of later integration of the disciplinary results;
 - Each discipline is using and developing its own methods in context to the entire problem;
 - In the whole process there is the connection between the single working tasks and the subordinated problem or research question.

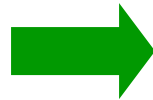
Source: Internationale Konferenz über Transdisziplinarität, ETHZ 2000

Transdisciplinary approach

Climate Change / Climate Research



Market Research



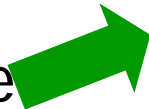
Spatial Planning and
Regional Development



Strategie



Local Knowledge

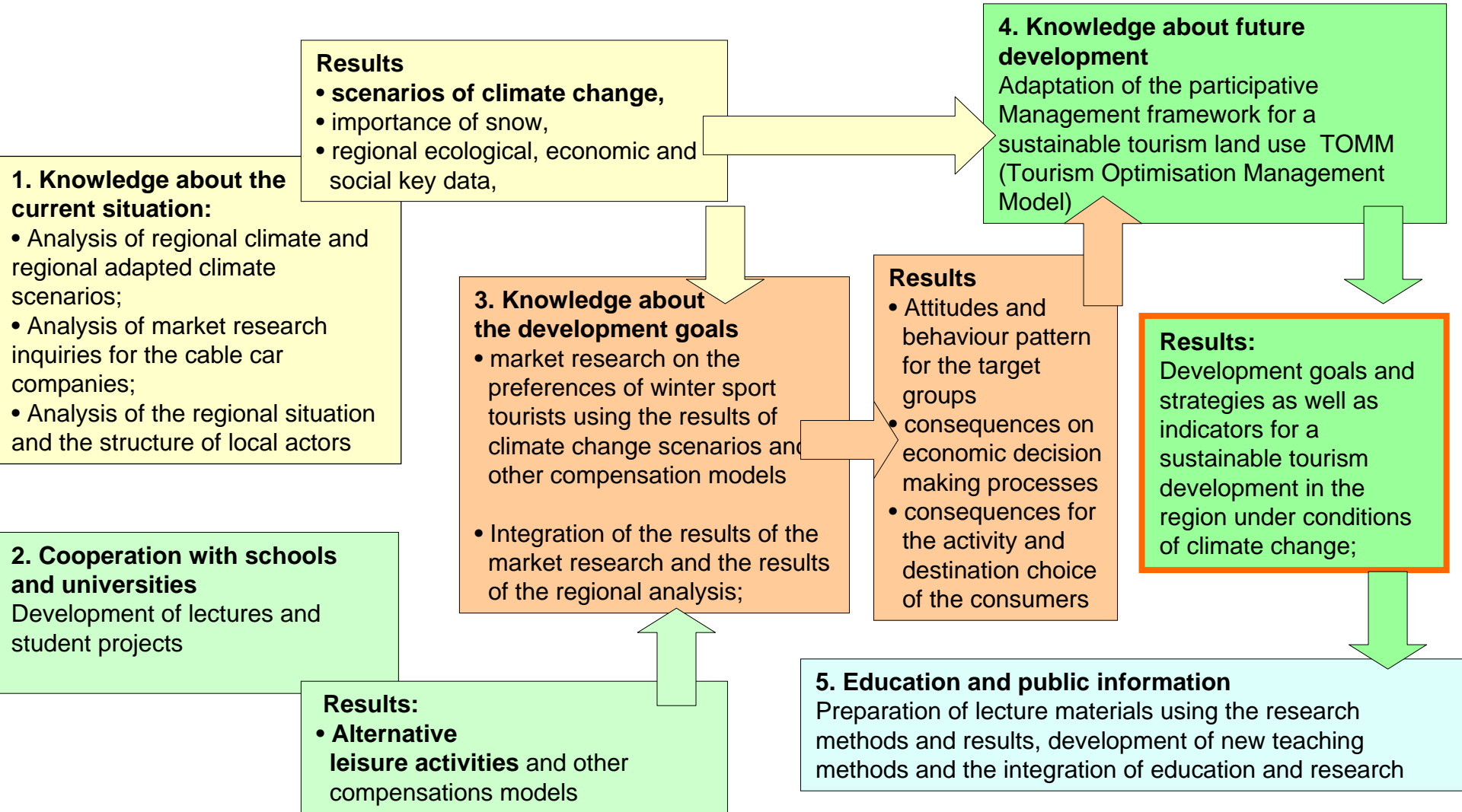


Integration in locale
trade-offs and
decision making
processes



Tourism Research and
Tourism Destination Management

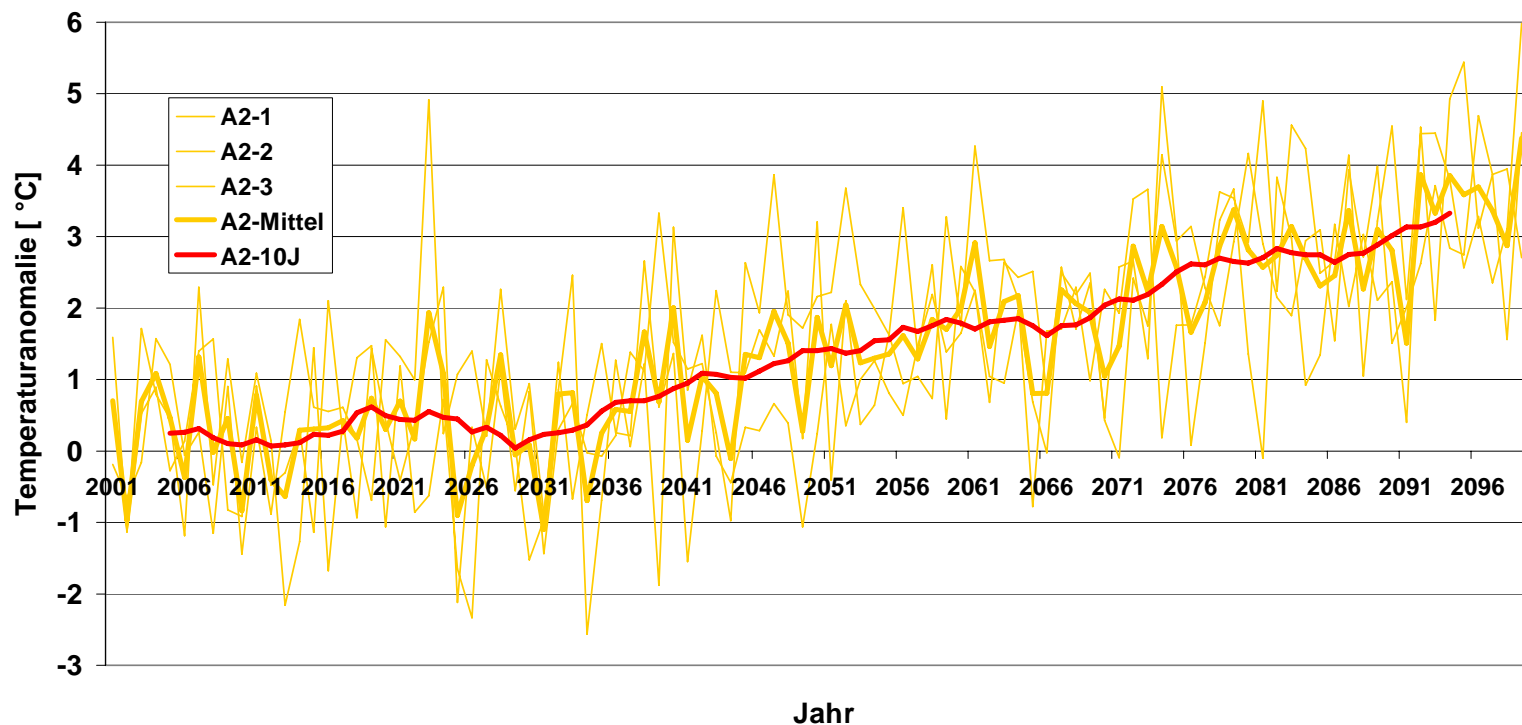
Constitution of a transdisciplinary research concept



ECHAM5- Temperature Scenario for the region of Schladming in winter time (3 Ensembles A2-Scenario)



ECHAM5-Temperatur Szenario für den Raum Schladming im Winter (3 Ensembles A2-Szenario)



First Modelling based on local data of Schladming; Dr. H. Formayer, Institute for Meteorology

Roeckner, Erich; Lautenschlager, Michael; Schneider, Heiko 2006; IPCC-AR4 MPI-ECHAM5_T63L31 MPI-OM_GR1.5L40 SRESA2 run no.3: atmosphere monthly mean values MPImet/MaD Germany. [doi: 10.1594/WDC/EH5-T63L31_OM-GR1.5L40_A2_3_MM]

Attitudes of the ski enthusiasts on Snow

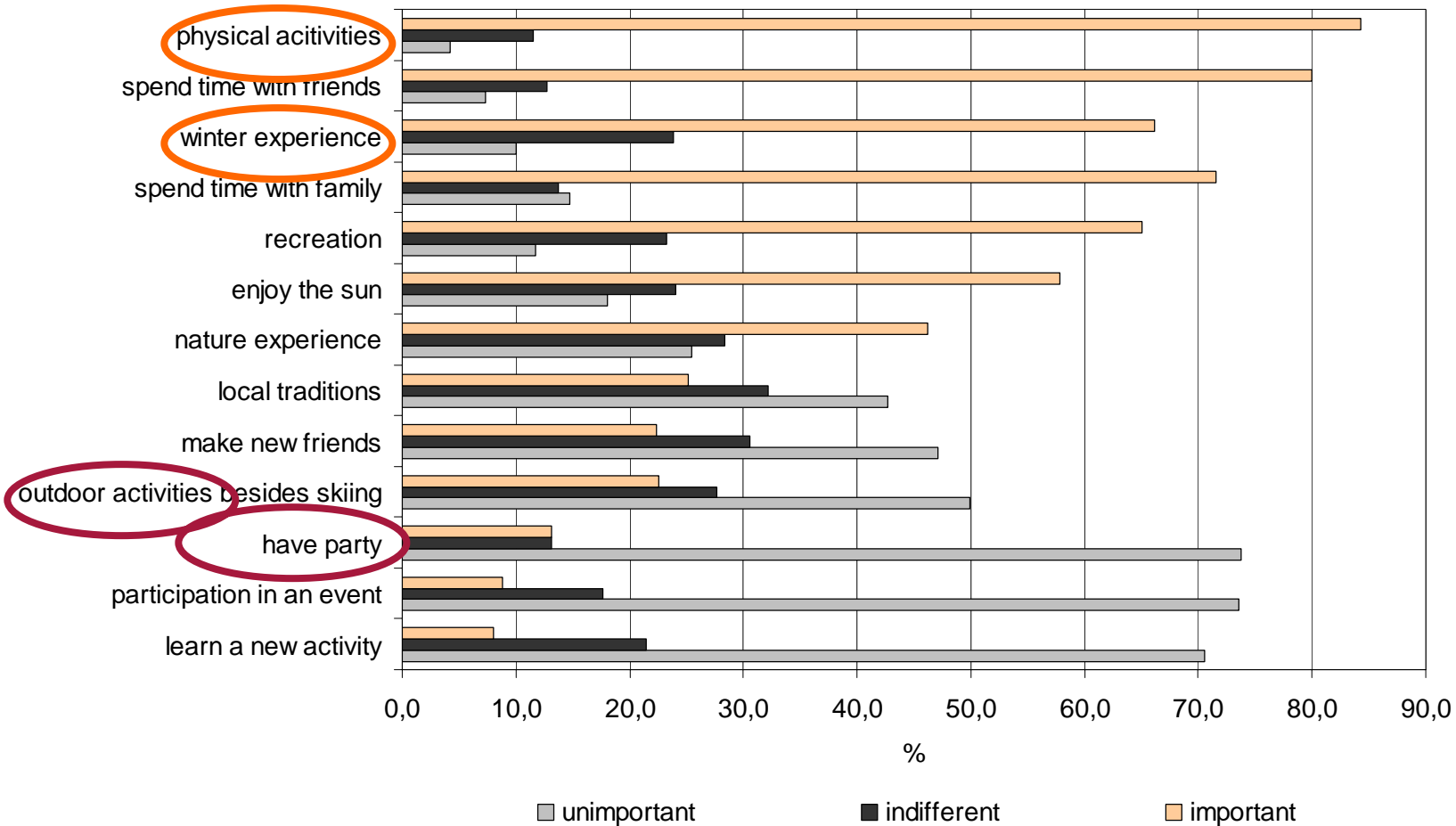


- **The significance of snow for destination choice**
- Snow conditions are extremely important
- Furthermore
 1. Size of the ski resort – 56%
 2. Travel distance – 39 %
- Which target group is very sensitive:
 1. Frequent visitors (Stammgast)
 2. „Pleasure skiers“ (Genussskifahrer)
 3. Skiers from Germany and Austria



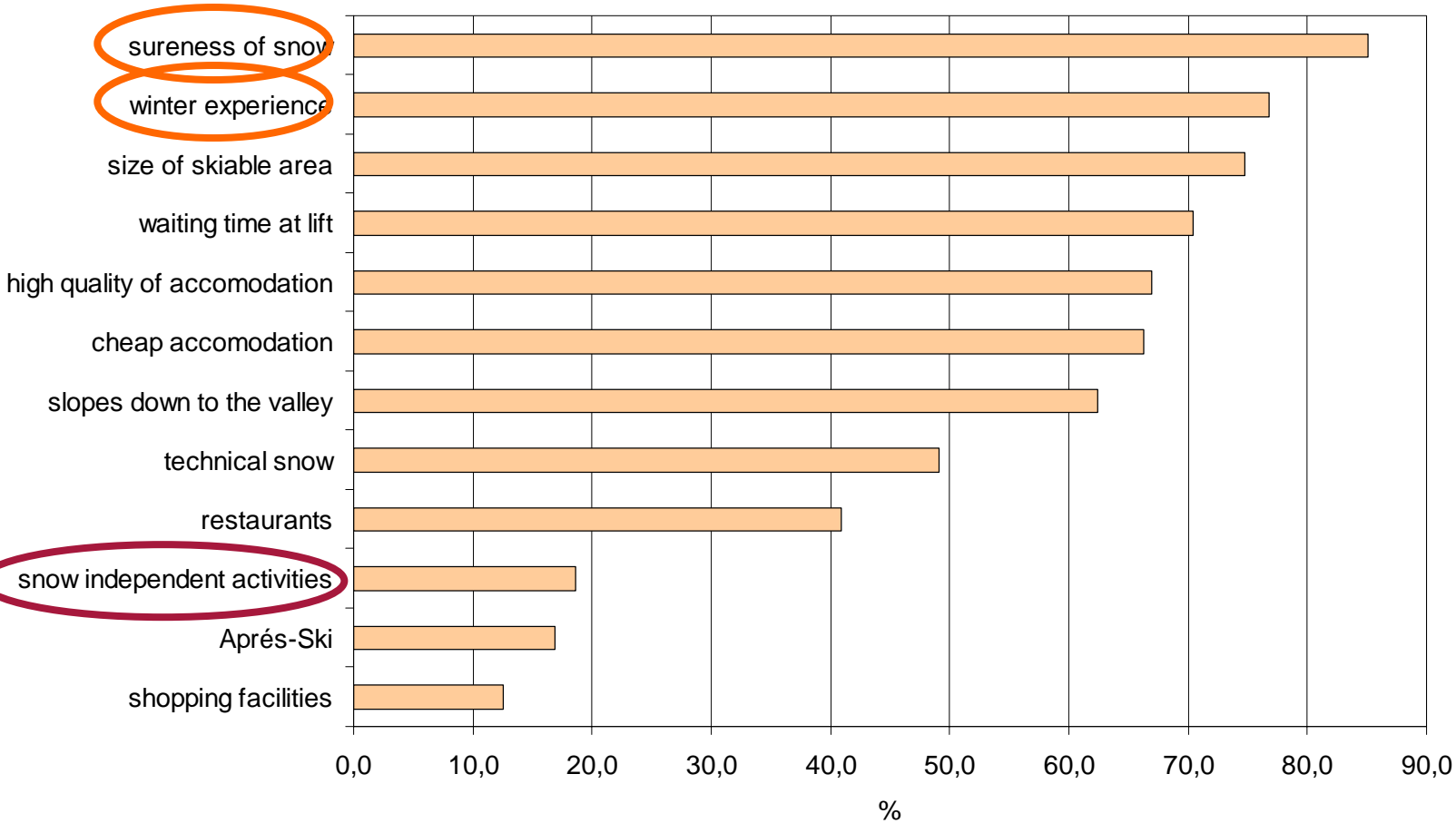
Manova 2006

Motives of winter sport tourists



n=388

Destination choice – influencing Factors



n=388

Adaptations strategies of alpine communities on changing climate conditions



Strategies to ensure the Tourism in the alpine space

Avoiding Climate Change

Ensure winter sport tourism

- technical snow;
- extension of ski areas in higher altitudes;
- distribution of financial risks and benefits;
-

Substitutes in the winter season

- temporary measures at the:
- ski destination:
- Improvement of services,
- wellness and Spa-facilities;
- snow-independent attraction;
- indoor sports;
- compensation programme in winters lack of snow;

...

Alternatives for winter sport tourism

- Enhance Summer tourism;
- Use of ski infrastructure in summer time;
- Alternative sport options?
- ?
- ?

Where to go after some winters lack of snow?



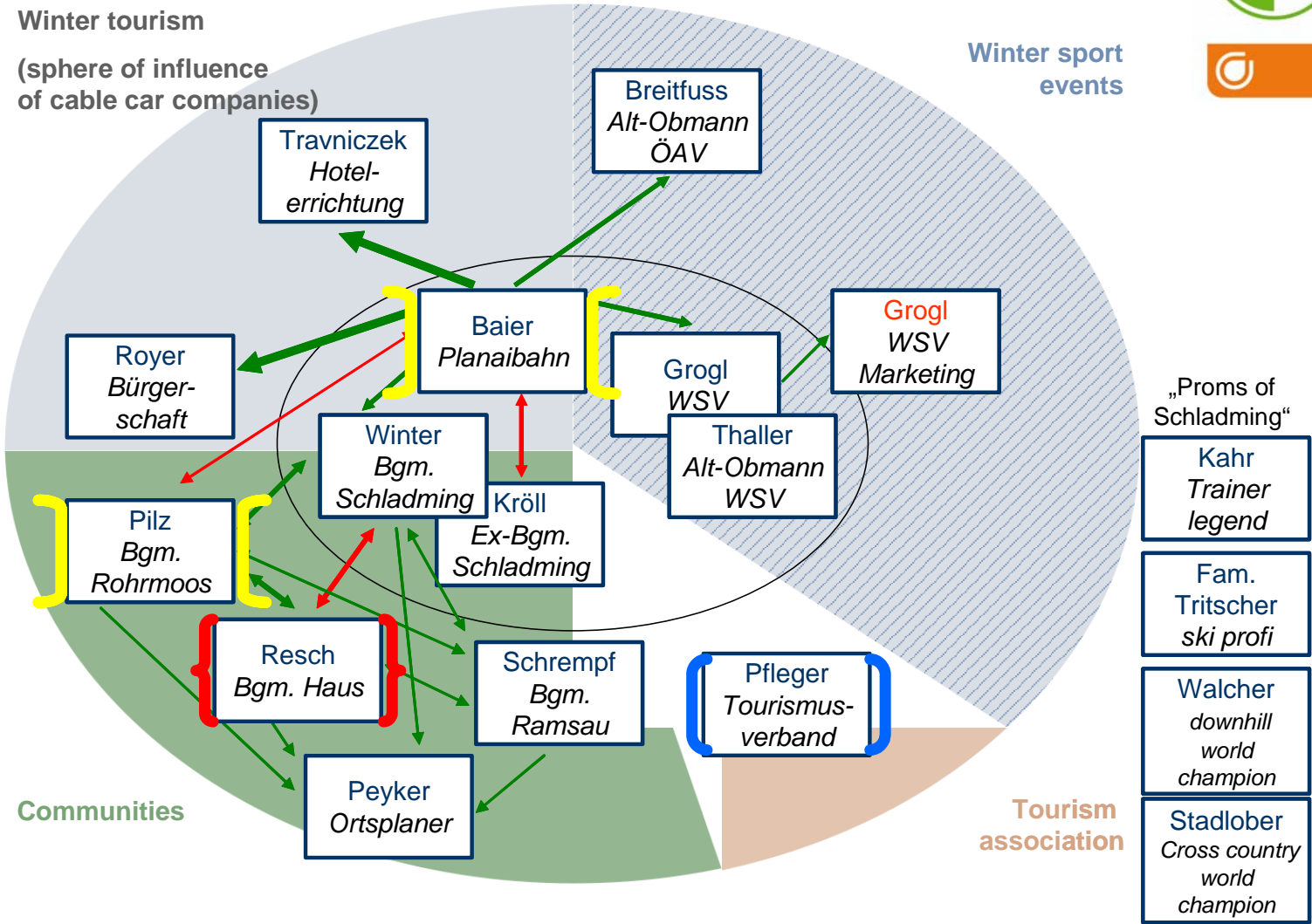
High loyalty to austrian ski destinations of the Viennese – what about the foreign guests?

Impacts of press reporting about climate change

- Press reporting about the impacts of climate change can influence the public awareness by photos, movies and reports;
- This may lead to a breach of confidence at visitors and causes adaptation processes;
- Examples from the past:
 - 1986 press report about forest dieback in consequence of acid rain in the Black Forest resulted in a strong decrease in booking numbers;
 - The media reports about the pollution of Italian beaches were followed by decreasing number of bookings;



Network of Regional players



Tourism Optimisation Management Model (TOMM)



- The main goals of TOMM:
 - Definition of the optimal terms and conditions concerning:
 - The environment,
 - The regional economy,
 - Marketing,
 - the experiences at the destination,
 - Social and cultural aspects.
 - Definition of representative indicators to describe the optimal terms and conditions and participative definition of acceptable development ranges;
 - Development of a data base to identify and measure needs and impacts of tourism;
 - Development of a management framework that measures whether the actual situation accords to the defined ranges of optimal terms of conditions or not;
 - Deduce management measure to attain the defined goals;

Example for an indicator in TOMM

Visitor satisfaction



Indicator:	High satisfaction of visitors
Area:	Quality of experience
Optimal condition:	High expectations of the major parts of visitors are accomplished
Criteria/measured value:	Share of visitors, who are very satisfied with there stay in the region (summer and winter)
Acceptable range	Between x und y % of the visitors are very satisfied
Source of information:	Customer satisfaction inquiry

Conclusions



- Transdisciplinary research is required
 - to deal with an uncertain future development
 - to solve complex research questions by the combination of partners from different research fields, the local population and from the affected branch
 - to enhance the decision making process on a local level
 - to find strategies for a sustainable spatial development.

- See: www.Klimawandel-wintersport.at



Projekt Partners



- Österreichisches Institut für Raumplanung
Franz-Josefs-Kai 27, 1010 Wien



- Institut für Meteorologie
Peter Jordan Str. 82, 1190 Wien,



- Manova Marktforschung
Ungargasse 53, 1030 Wien,



- Institut für Landschaftsentwicklung, Erholungs- und
Naturschutzplanung, Peter Jordan Str.82, 1190 Wien



- Planabahn, Schladming und Dachstein-Region,
A-8970 Schladming, Coburgstr. 52

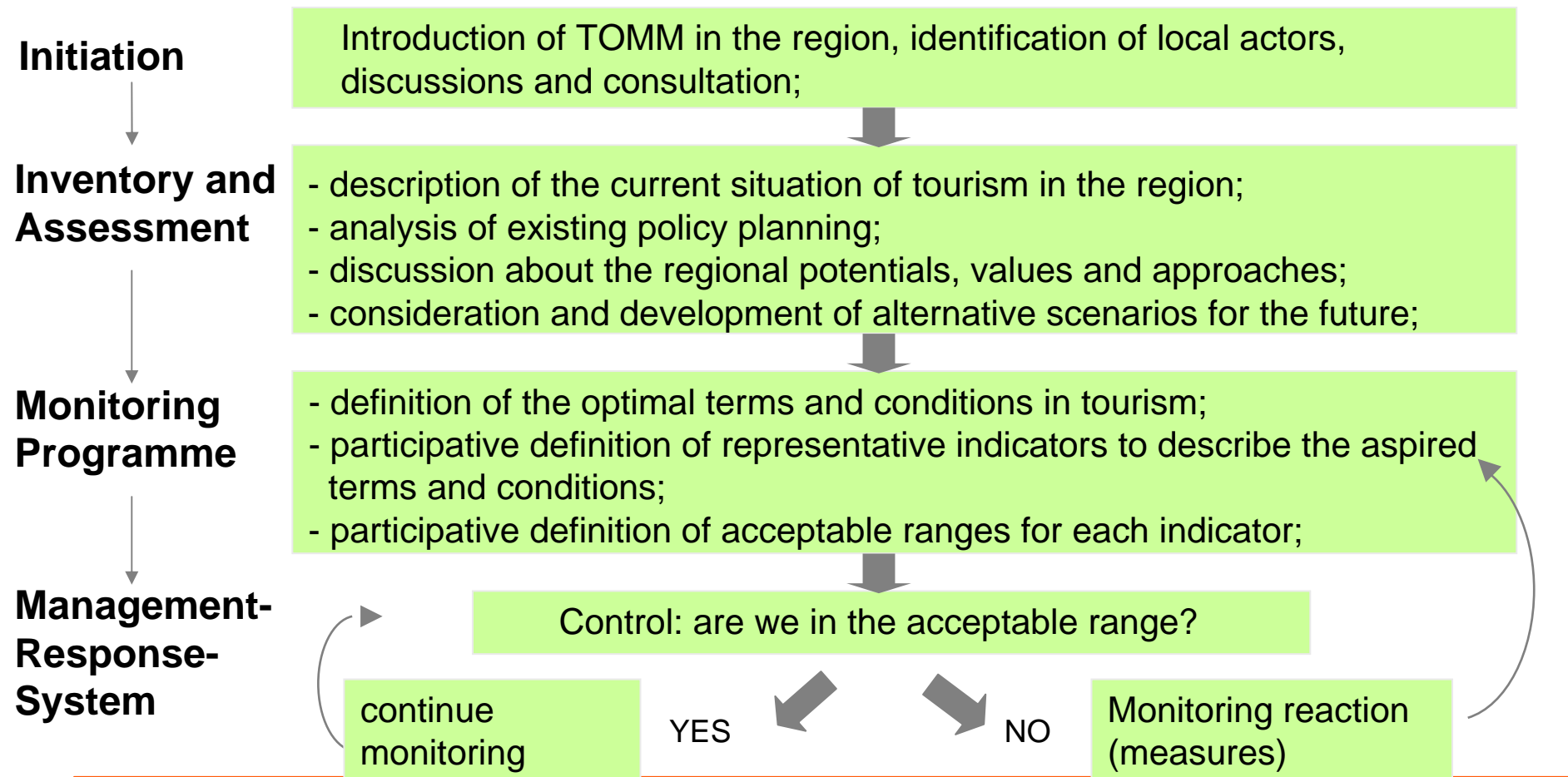
- Verband der Österreichischen Seilbahnen



Univ. Prof. DI. Dr. Ulrike Pröbstl
DI Wiebke Unbehaun

Peter-Jordanstr.65, A-1180 Wien
Tel.: +43 1 47654-7207,
Fax: +43 1 47654-7209
Ulrike.Proebstl@boku.ac.at
www.boku.ac.at

The procedure of TOMM



Example for an indicator in TOMM

Satisfaction of local inhabitants



Indicator:	High satisfaction of local inhabitants
Area:	Quality of life
Optimal condition:	High satisfaction of local inhabitants with the quality of life
Criteria/measured value:	Share of inhabitants, who feel good and is satisfied with the quality of life in their community/region
Acceptable range	Between x und y % of the local inhabitants feel good in their community/region
Source of information:	Inquiry of the local inhabitants to the topics: feel good factors, quality of accommodation, working, provision, education, recreation, transport, communication and financial situation; Regional statistics: income, migration, movement of labours