Horizon Europe

Action: EIC Pathfinder Open (Project No 01046909)
Reusable mask patterning (REMAP)

WP4: Deliverable 4.9
Title: IP Roadshow

Dissemination level: PUBLIC

Date: 12 January 2026

Deliverable D4.9 “IP Roadshow” was prepared under WP4 “Pathway to Impact” specifically within Task 4.2: IP management: planning, training, consulting, and Roadshow. The deliverable “Type” is “*Other”* because it refers to a live event. RINA produced this document to provide an overview of the event, covering organisational aspects and the feedback collected from external stakeholders. The purpose of the document is to ensure that all relevant information is accurately captured and reported.

The following REMAP Groups were involved in this work:

- RINA-C: responsible for technical organisation.
- UNIVERSITA DEGLI STUDI DI GENOVA (UNIGE): managed logistics and the overall coordination of the event.
- NCSRD, UNILU, UNIGE, CNRS: illustrated the KERs during the Sci-peritivo

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the European Union

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1. Roadshow Objectives

The Roadshow was an on-site (live) workshop open to industrial stakeholders, investors and academia, but remote connection was available. It aimed to align the project's outputs with emerging or existing business opportunities, to achieve societal benefits beyond REMAP, and to contribute to drafting a more complete picture of the IP exploitation roadmap. UNIGE handled the logistics, whereas RINA-C led the technical organisation.

2. Target Audience and Application Sectors

As stated above, the Roadshow's objectives were to **disseminate the project's results, collect feedback on the potential applications of the developed solutions, and assess exploitation opportunities**. Accordingly, the target audience comprised strategic stakeholders from industry, academia and institutional bodies, in addition to REMAP's consortium partners.

The application sectors of interest, identified by RINA-C and validated by UNIGE, were structured around four main thematic areas. The first area, **Energy & Photovoltaics**, included actors operating in the photovoltaic sector and related segments of the energy value chain. The second area, **Microelectronics & Manufacturing**, covered semiconductor and chip manufacturing companies, in particular those that could benefit from REMAP microfabrication technologies. The third area, **Biomedicine & Lab-on-a-Chip**, focused on medical and diagnostic device companies, including developers of lab-on-a-chip and microfluidic platforms for immunoassays. The fourth area, **Advanced Coatings & Plating**, comprised companies active in surface coatings, finishing and electroplating technologies.

3. Roadshow Overview

The REMAP Roadshow event took place on **19 September 2025** and was organised in two main parts: a morning **technical programme** hosted at the University of Genoa (Via Balbi 5), followed by an afternoon of **networking activity** conducted via a boat tour departing from Porto Antico (Calata Mandraccio), with networking and a "sci-peritivo" in Portofino.

Interaction with participants combined formal presentations and moderated sessions with interactive Q&A, supported by informational materials (brochures/technology cards) and a structured feedback questionnaire to capture stakeholders' views on applicability and exploitation potential.

3.1. Agenda and Programme

The event was structured to balance formal knowledge exchange with interactive discussion and networking opportunities. The main components were:

- Opening and welcome: short institutional and project welcome remarks to introduce REMAP, its objectives and the purpose of the Roadshow. During this opening the **REMAP presentation video** was shown, the video is also available on REMAP's YouTube channel: https://www.youtube.com/watch?v=9F-AHi8vf64.
- Technical Sessions: two consecutive technical sessions focused on distinct thematic areas, **Session 1 on PV and hydrogen (PVH2)** and **Session 2 on Electrodeposition (EP)/Magnetism (MG)**.

Each session included a set of invited presentations, chaired by designated session chairs, followed by a roundtable Q&A to allow speakers and the audience to discuss technical content, industrial relevance and potential exploitation routes.

- Concluding remarks: brief closing comments to summarise key takeaways and next steps.
- Breaks and networking: a light lunch separated the morning technical programme from the subsequent session, providing informal networking time.
- Afternoon networking programme: a boat tour from Porto Antico to Portofino that provided extended networking time, informal discussions and a "sci-peritivo" in Portofino. During the afternoon the organisers distributed technology cards to participants; these cards described the project's key exploitable results (KERs), and the leaders of each KER presented the main insights. The KERs shared were:
  - **KER #1 - Functionalised aqueous MREs.**
  - **KER #2 - LMS-based MREs.**
  - **KER #3 - REMAP proof of concept.**
  - **KER #6 - Magnetic field gradient patterns.**
- Return and optional dinner: after returning to Genoa, participants had free time and an optional group dinner was organised.

In addition, the Roadshow included a number of interviews conducted on site: an interview of Prof. Daniel Lincot (Centre National de la Recherche Scientifique) by Prof. Laurie Peter (University of Bath); an interview of Dr. Irina Gushchina (Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali; University of Genoa) by Dr. Giulia Spaggiari (Istituto Italiano di Tecnologia); and an interview of Prof. Gary Friedman (Drexel University) by Prof. Diego Colombara (University of Genoa).

A **video of the event**, including these interviews, is available here: https://youtu.be/FHY-3afzcPw?si=LHaKRosuhJHb8WsC

For the full detailed agenda (speakers, times and presentation titles), please see the Annex.

3.2. Feedback Collected (Questionnaire Results)

During the afternoon networking programme (the "sci-peritivo" in Portofino), participants were invited to complete a brief **questionnaire accessible via the QR code** printed on the technology cards distributed during the event. Link: https://forms.office.com/pages/responsepage.aspx?id=_-PjduD87EWpRrxE1pqbfi-dTIvh7F9BibqvQaZcZYJUN05GRFRZRExPNFo5UVJEVlhEVURBVzJYUS4u&route=shorturl

Figure 1: Roadshow Event Questionnaire

The questionnaire was designed to gather stakeholders' feedback on REMAP and to assess interest in, and perceived applicability of, the project's Key Exploitable Results.

The questionnaire collected information on respondents' organisation and affiliation, including whether they were REMAP project partners or external stakeholders, and which Roadshow session(s) they attended. Participants were asked how they learned about the event and which aspects of the project results they found most valuable (e.g. scientific findings, practical applications, collaboration opportunities or innovation potential).

The survey further explored interest in specific Key Exploitable Results (KERs), asking respondents to indicate which KERs they would be interested in exploring further and which application areas they consider most relevant to their activities, with the possibility to suggest additional application areas not listed.

Finally, respondents were asked whether they would like to be contacted for potential collaboration, to indicate preferred REMAP partners and collaboration models (e.g. joint ventures, spin-offs, collaborative R&D projects or consultancy), and to provide any open comments or suggestions regarding the KERs or the Roadshow event.

The full, itemised questionnaire (questions and response options) is available in the Annex.

Responses collected via the QR questionnaire were compiled for analysis. Aggregated results are presented below.

While the socio-demographic collected statistics are reported at the end of the document.

Sixty percent of respondents were **REMAP project partners**, with the remaining 40% being **external stakeholders**. Respondents included representatives from several academic and research institutions, such as the University of Bath, IIT and CNR, the University of Genoa (UniGe), NCSR "Demokritos", INRiM - Istituto Nazionale di Ricerca Metrologica, the University of Catania and the University of Luxembourg.

Most respondents attended the technical sessions of the Roadshow. In particular, the **Electrodeposition and Magnetism** session was attended by all respondents, while the **Photovoltaics and Hydrogen** session was attended by the majority of participants.

Regarding dissemination channels, the primary way respondents learned about the Roadshow was through **colleagues** (53.8%). The **project website** also played a relevant role (23.1%), while **LinkedIn** was mentioned by one respondent. Other channels were indicated by 15.4% of respondents, whereas no participants reported having learned about the event via X.

When asked which aspects of the project results they found most valuable, respondents primarily highlighted the **scientific findings** (36%), followed by the project's **innovation potential** (28%). **Collaboration opportunities** were

also considered valuable (20%), while **practical applications** were selected by a smaller but still relevant number of participants (12%).

Interest in the **project's KERs** was distributed across several outputs. **KER #1 - Functionalised aqueous MREs** attracted the highest level of interest (33%), followed by **KER #6 - Magnetic field gradient patterns** (28%). **KER #2 - LMS-based MREs** and **KER #3 - REMAP proof of concept** also generated interest, with 22% and 17% respectively, indicating that multiple REMAP outcomes are perceived as relevant for further exploration.

In terms of application areas, the highest levels of interest were expressed for **Energy & Photovoltaics** (22.6%), **Biomedicine & Lab-on-a-Chip** (19.4%) and **Water Purification** (19.4%). Moderate interest was reported for **Microelectronics & Manufacturing** and **Magnetic Resonance Microscopy** (9.7% each). Lower but still notable interest was observed for **Advanced Coatings & Plating** and **Electromagnetic Induction Imaging** (6.5% each), while **IoT Devices** and **Building & Construction** were mentioned by 3.2% each. One participant additionally suggested **Catalysis** as a further application area not originally listed in the questionnaire.

Finally, 60% of respondents indicated preferred partners for potential collaboration, most frequently mentioning the **University of Genoa / UniGe**, together with other REMAP partners such as INL, CNRS, Solvionic, NCSR "Demokritos" and the University of Luxembourg. Preferred collaboration models included **joint ventures** and **collaborative R&D projects** (20% each), as well as **spin-off creation and consultancy-based or collaborative arrangements**.

4. Conclusions

The **REMAP Roadshow** successfully achieved its primary objectives of **disseminating project results**, **engaging with relevant stakeholders,** and **collecting structured feedback** on the applicability and **exploitation potential of the project's KERs**. By combining a technically robust programme with dedicated networking opportunities, the event provided an effective forum for dialogue between the REMAP consortium and representatives from academia, research organisations and external stakeholders.

The **participation in both technical sessions** confirms the **relevance of the thematic areas** addressed by the project. Feedback collected through the questionnaire highlights a clear appreciation of REMAP's scientific outputs and innovation potential, alongside a concrete interest in collaboration and exploitation-oriented activities. Among the project results, **KER #1 (Functionalised aqueous MREs)** and **KER #6 (Magnetic field gradient patterns)** emerged as priorities for further exploration, while interest was also expressed across multiple application domains, notably **Energy & Photovoltaics, Biomedicine & Lab-on-a-Chip** and **Water Purification**.

The Roadshow format, combining formal presentations, moderated discussions, and informal networking supported by targeted dissemination materials, proved effective in fostering interaction, gathering qualitative and quantitative feedback, and identifying potential pathways for future engagement. The expressed interest in structured collaboration models, such as joint ventures and collaborative R&D projects, indicates readiness among participants to consider follow-up actions beyond the scope of the event.

5. Annex

5.1. Roadshow Preliminary Brochure

REMAP
microfab green.0

REMAP's long-term ambition is a paradigm shift in microfabrication

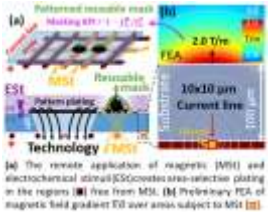
- Surface patterning is essential for industries like advanced manufacturing, microelectronics, biotechnology, and photonics, with emerging green technologies requiring sustainable alternatives.
- Optical Projection Lithography (OPL), while guaranteeing high-resolution, is inefficient and unsustainable for large-scale applications like micropatterned photovoltaics, especially given its reliance on energy-intensive disposable masks.
- Efforts to develop maskless strategies often fail to meet the throughput and design flexibility needed for practical applications.
- REMAP introduces a novel surface patterning technique using reusable magnetic masks formed by "**magnetorheological electrolytes**" (MRE) and adjustable micro-electromagnetic fields.
- The technology enables **sustainable, high-throughput patterning at room temperature and pressure**, with potential future applications in lab-on-a-chip biomedicine, NMR analysis, smart fluids for robotics space exploration and others.

REMAP leverages the expertise of **7 partners** from **5 EU Countries**:

- ITALY (Università di Genova & RINA)
- FRANCE (CNRS & Solvionic)
- PORTUGAL (INL)
- GREECE (NCSR"D")
- LUXEMBOURG (Université du Luxembourg)

REMAP – The technology of reusable masks

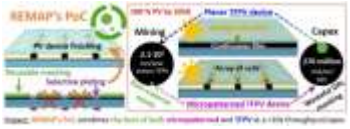
- REMAP introduces reusable mask-based patterning technology by using magnetoresponsive fluids (MRf) with plating functionality, eliminating the need for conventional lithography.
- It leverages magnetorheological electrolytes (MREs), inspired by magnetorheological fluids, which change viscosity under magnetic fields for precise patterning.
- Microscopic shapes of MREs are controlled remotely using micro-structured magnetic fields, enabling selective electroplating on unmasked areas
- This innovative approach ensures **contactless** and **reversible pattern creation** without wasteful masking or pre-patterned templates, revolutionizing surface patterning methods.



REMAP proof of concept Micropatterned photovoltaic solar cells

- **Planar thin-film PV** (TFPV) is ca. 50% **more energy efficient** compared to silicon, and scales **more economically** to GW volumes. **Micropattern TFPV**, the design chosen for REMAP's poc, **is far more disrupting.**

  Its array of cells **reduces raw material needs by 99%** compared to TFPV, **while boosting solar cell efficiency** by 4% absolute.
- The concept is only proven at lab-scale because it relies on wasteful Optical Projection Lithography (OPL) masking.
- **REMAP** would enable its fabrication at **≥95% plating efficiency, >10× OPL's throughput per unit of capex**, and **proven semiconductor quality for the PV industry.**



Roadshow – Exploring other future applications of REMAP Technology – Maskless patterning & magnetorheological fluids

The **REMAP Roadshow Event** will have the following objectives

- **Disseminate** the project results **to strategic stakeholders** in the industrial, academic, and institutional fields.
- **Gather feedback** on the **application potential** of the developed solutions.
- **Foster synergies and opportunities for technology adoption** in various domains.
- **Assess** possibilities for commercial and IP **exploitation, licensing,** or **spin-off creation.**

Identified potential application sectors

REMAP technology is going to **transform many industrial sectors:**

- Microfabrication/chip manufacturing
- Photovoltaic industry
- Surface coating/plating companies
- Lab-on-a-chip biomedicine
- Water purification companies
- Smart fluids for Robotic Space exploration
- Nuclear Magnetic Resonance (NMR) Analysis
- Other applications that can benefit from variable pattern maskless microfabrication technology

Are you interested in participating the event?

Stay tuned!

Location: University of Genoa,
via Balbi 5, 16126, Genova

Date: 19th September 2025

The detailed agenda will follow shortly

If you need further assistance, please contact:

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REMAP
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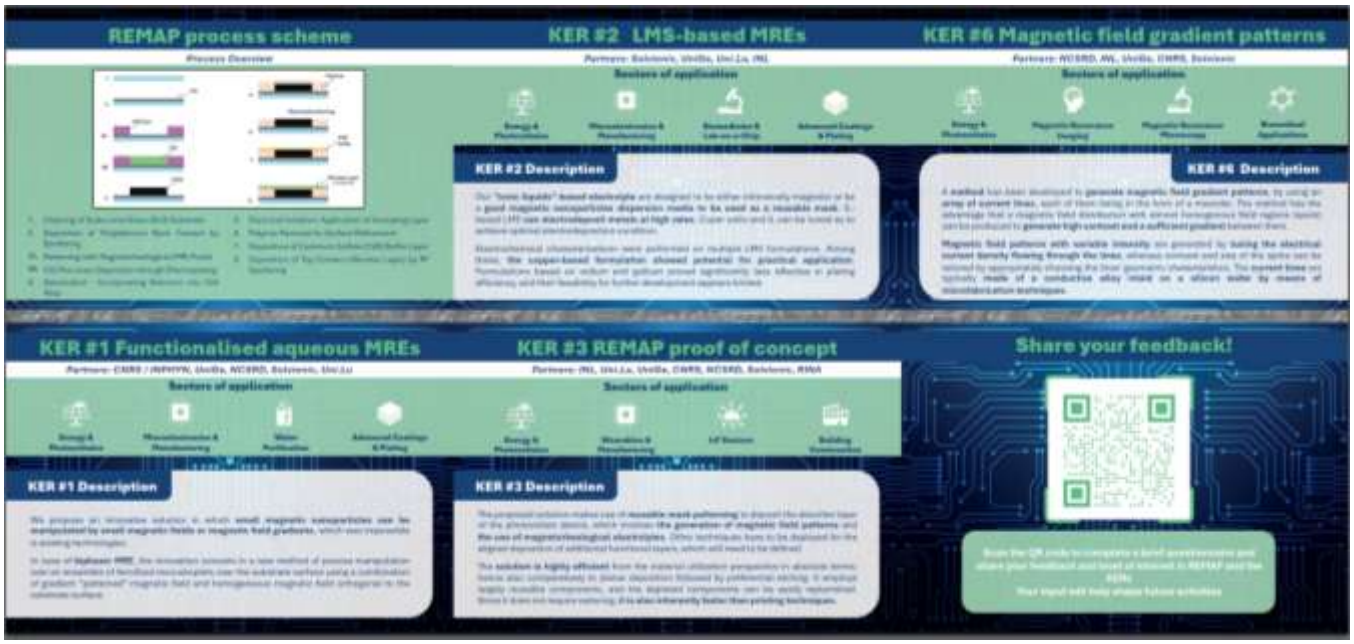
5.2. Roadshow Flyer

5.3. Roadshow Agenda and KERs Cards



5.4. Photos

5.5. Questionnaire

Roadshow Event Participation - REMAP EU Project
University of Genoa - 19th September 2025

Thank you for attending the REMAP EU Project Roadshow at the University of Genoa. We value your feedback to help us understand your experience and improve future events. Please take a few minutes to share your thoughts about the project results presented.
Privacy Notice and Consent for Personal Data Processing
In accordance with Regulation (EU) 2016/679 (General Data Protection Regulation – GDPR), we inform you that the personal data you provide will be processed lawfully, fairly, and transparently, ensuring your privacy and rights.

* Required

REMAP / e-APP Roadshow Feedback & Key Exploitable Results Survey

1. Do you consent to the processing of your personal data for the purposes described above? *

- ◯ Yes, I give my consent
- ◯ No, I do not give my consent

2. Your name *

3. Organization / Affiliation *

4. Are you a project partner or external stakeholder?

- ◯ Project Partner
- ◯ External stakeholder

5. Which session(s) did you attend?

- ☐ Photovoltaics and Hydrogen
- ☐ Electroplating and Magnetism

6. How did you hear about this event?

- [ ] Our website
- [ ] Colleague(s)
- [ ] Familiy or friend
- [ ] LinkedIn post
- [ ] Twitter post
- [ ] Other

7. Which aspects of the project results did you find most valuable?

- [ ] Scientific findings
- [ ] Practical applications
- [ ] Collaboration opportunities
- [ ] Innovation potential
- [ ] Other

8. Which Key Exploitable Results (KERs) are you interested in exploring further?

- [ ] KER #1 - Functionalised aqueous MREs
- [ ] KER #2 - LMS-based MREs
- [ ] KER #3 - REMAP proof of concept
- [ ] KER #6 - Magnetic field gradient patterns

9. Please indicate which specific application(s) you are interested in:

- [ ] Energy & Photovoltaics
- [ ] Microelectronics & Manufacturing
- [ ] Magnetic Resonance Microscopy
- [ ] Electromagnetic Induction Imaging
- [ ] Biomedicine & Lab-on-a-Chip
- [ ] Advanced Coatings & Plating
- [ ] Water Purification
- [ ] IoT Devices
- [ ] Building & Construction

10. Would you like to suggest additional application area(s) not listed above? If yes, please list them below.

11. Would you like us to contact you to discuss potential collaboration? *

- ◯ Yes — please contact me
- ◯ Maybe — I need more technical details first
- ◯ No

12. With which partner would you prefer to collaborate? University of Genoa, RINA, CNRS, Solvionic, INL, NCSR "Demokritos", University of Luxembourg

13. Which collaboration model(s) would you consider? (e.g., Joint venture, Spin-off, collaborative R&D project, consultancy services...)

14. Please feel free to share any suggestions or comments regarding the REMAP Key Exploitable Results (KERs) or the Roadshow event.

Social & Demographic Data Survey

Privacy consent form to help us improve the way we do science and communicate it.

You are invited to participate in a survey as part of a research study on reusable mask patterning conducted by the University of Genova, within the REMAP consortium (https://re-map.eu/): a PathFinder Open project funded by the European Union under grant agreement No. 101046909. By answering the following questions, you ackowledge the purpose, procedures, and potential risks and benefits of the study, as outlined below.Purpose of the study.
The aim of the study is to identify the current public knowledge, beliefs, and attitudes towards environmental degradation, and innovations having potentially positive impact on the environment. REMAP's research contributes to the following United Nation's sustainable development goals (SDGs): 12 - Responsible consumption and production; 9 - Indutry innovation and infrastructure; 7 - Affordable and clean energy; 5 - Gender equality.
Procedures.As part of the scientific communication campaign carried out within the REMAP project, this survey collects demographic and socio-economic data of the respondents such as name, surname, Country of residence, age, gender, cultural interests and attitudes, school degree and education. Such personal data acquired shall be analysed in an anonymous way.
This survey is carried out through the Microsoft Forms platform and shall be coordinated by Diego Colombara (diego.colombara@unige.it). By continuing your Microsoft Forms session you agree to the terms and conditions specified in this form.

Anonymity and confidentiality.
We do ask you to share with us your name and surname. The answers you will give in the survey, including your name, surname and e-mail address, shall not be shared with any third parties. Participants will be identified by a code in publications and reports from the study, indicating their country, gender, age, etc. (e.g. Italy, female, 21, etc.), but any potential reference to your identity shall be removed from your answers, including your e-mail address.

Potential for harm.
You will be disclosing your views on the survey topic. You are free to express your opinions in an unbiased manner. If you do not wish to respond to personal questions, you are given the option to opt out.

Voluntary participation.
Your participation in this research is entirely voluntary. You have the right to refuse to participate or to withdraw at any point during the survey without any penalty.

Risks and benefits.
There are no known risks associated with this survey. While there may be no direct benefits to you from participating in this survey, your responses may help us gain more insight into public attitudes and engagement towards science.

15. I consider myself... *

- ◯ Male
- ◯ Female
- ◯ Other
- ◯ Prefer not to say

16. My age is... (insert the number / I prefer not to respond)

17. My most advanced degree is... *

- ◯ Primary
- ◯ Secondary
- ◯ High School
- ◯ Bachelor
- ◯ Master
- ◯ PhD
- ◯ Other
- ◯ I prefer not to respond

18. I am interested to deepen my knowledge of STEM disciplines. *

- ◯ Yes
- ◯ No

19. I am interested in the REMAP/e-APP projects because they deal with an important issue. *

- ◯ Yes
- ◯ No

20. I think that REMAP's and e-APP's results will have the same or a greater impact on (same impact / male / female / other) gender. *

- ◯ Same impact
- ◯ Male
- ◯ Female
- ◯ Other

21. Within my family I speak (write the language / I prefer not to respond). *

22. You may include your phone number or email address here if you so wish.

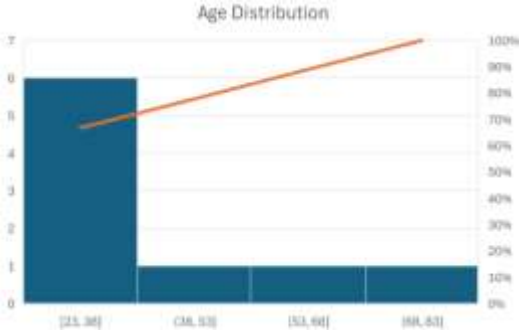
Below are the results of the social and demographic survey.

Questions 15) 16) 17).

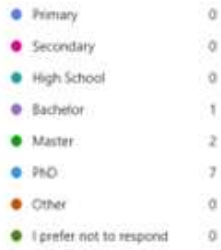
Respondents' distributions for gender, age, educational background

Gender Distribution

Age of the participants



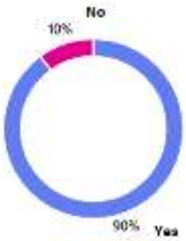
Educational background



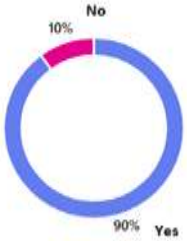
Questions 18) 19) 20) 21)

Respondents' interest in STEM disciplines, interest in REMAP due to perceived importance of the research, perception of preferential impact of REMAP's research on a specific gender and language spoken at home

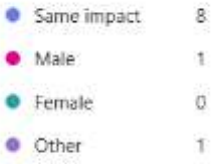
Interest in STEM



Importance of REMAP



Impact on gender



Language spoken at home