



MUTAC Review, Aug.22:

Introduction

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Situation after MUTAC'08

- **MUTAC'08 recommendations:**
 - *Develop a detailed plan to reach the goal of a MC feasibility study by 2012 for presentation to the MUTAC in 2009.*
 - *To organize and complete the 2012 feasibility study, NFMCC and MCTF must become more tightly coordinated, in order to optimally manage the resources available across the national labs, its integration with international experiments and the US participation for the neutrino factory IDS.*
 - *The committee recommends that the 5-year plan be a fully-integrated, joint effort, to capture and enumerate the full scope of R&D plans for both NFMCC and MCTF activities.*



Situation after MUTAC'08 (2)



- P5 report (May 2008):
 - *“...The panel ... recommends R&D for alternative accelerator technologies, to permit an informed choice when the lepton collider energy is established”*
- MCOG comments → Lab Directors to DoE (Aug.12)
 - *“...the NFMCC and MCTF efforts are developing concepts for one of the very few elementary particle physics accelerator ideas on the horizon, and R&D in support of a complete design in the foreseeable future will take a consistent effort.”*
 - *“...MCOG strongly urges the creation of a new 5 year plan, integrating NFMCC and MCTF activities, with a goal of completing a NF RDR and a Muon Collider feasibility study in the 2012 time frame. Such a plan should identify the next round of experimentation and technology demonstrations required to support these goals. It is recognized that such a plan will require an increase in resources over current levels.*



Situation after MUTAC'08 (3)

- The 5-year plan will be presented today
 - *For the 1st time*
 - *In its current form*
- The 5-year plan will be part of the Integrated Muon R&D Report at the DoE Review in Sep:
 - *Preliminary Agenda (TBC):*
 1. Introduction (MCOG)
 2. NFMCC Report
 3. MCTF Report
 4. 5-yr Plan: Design
 5. 5-yr Plan: Tests
 6. 5-yr Plan: Cost/Sched/Outlook



Few words on DoE review in Sep

- **Charge:**

we request a specific evaluation of:

1. The quality and impact of the research by the group in the recent past;
2. The scientific significance, merit, and feasibility of the proposed research;
3. The competence and future promise of the group for carrying out the proposed research;
4. The adequacy of resources for carrying out the proposed research, and cost-effectiveness of the research investment;
5. The quality of the support and infrastructure provided by the laboratory; and
6. How the group enriches the laboratory's experimental program (as applicable), and how well the group's activities relate to the overall HEP mission.

➤ *“...comparative assessment... will be an important input to the process of optimizing resource allocations...” ; key Qs:*

- What are the expected deliverables of this research thrust in the next 5-10 years? Approximately what level of investment is needed to achieve these goals?
- What is the benefit of additional investments in this particular thrust? What are the likely impacts of reduced investments?
- Is the current level of investment appropriate, given the current technical status, near-term milestones, and long-term promise?
- Do the labs have sufficient technical and management infrastructure to reliably deliver the goals for this programmatic area and respond to new developments?

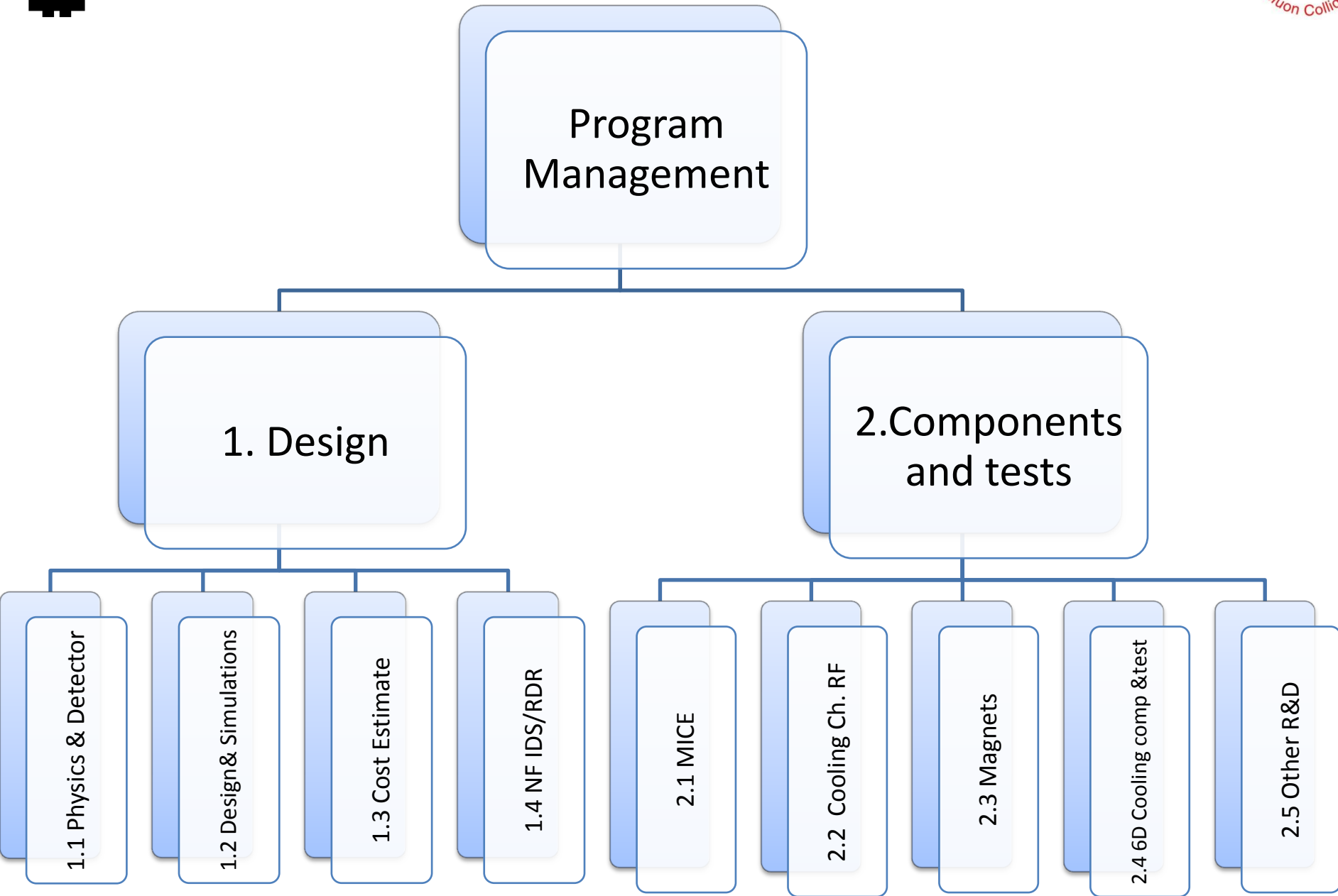
- **Today's mtg will be a very important step in preparation to the review**



5-year Muon R&D Program

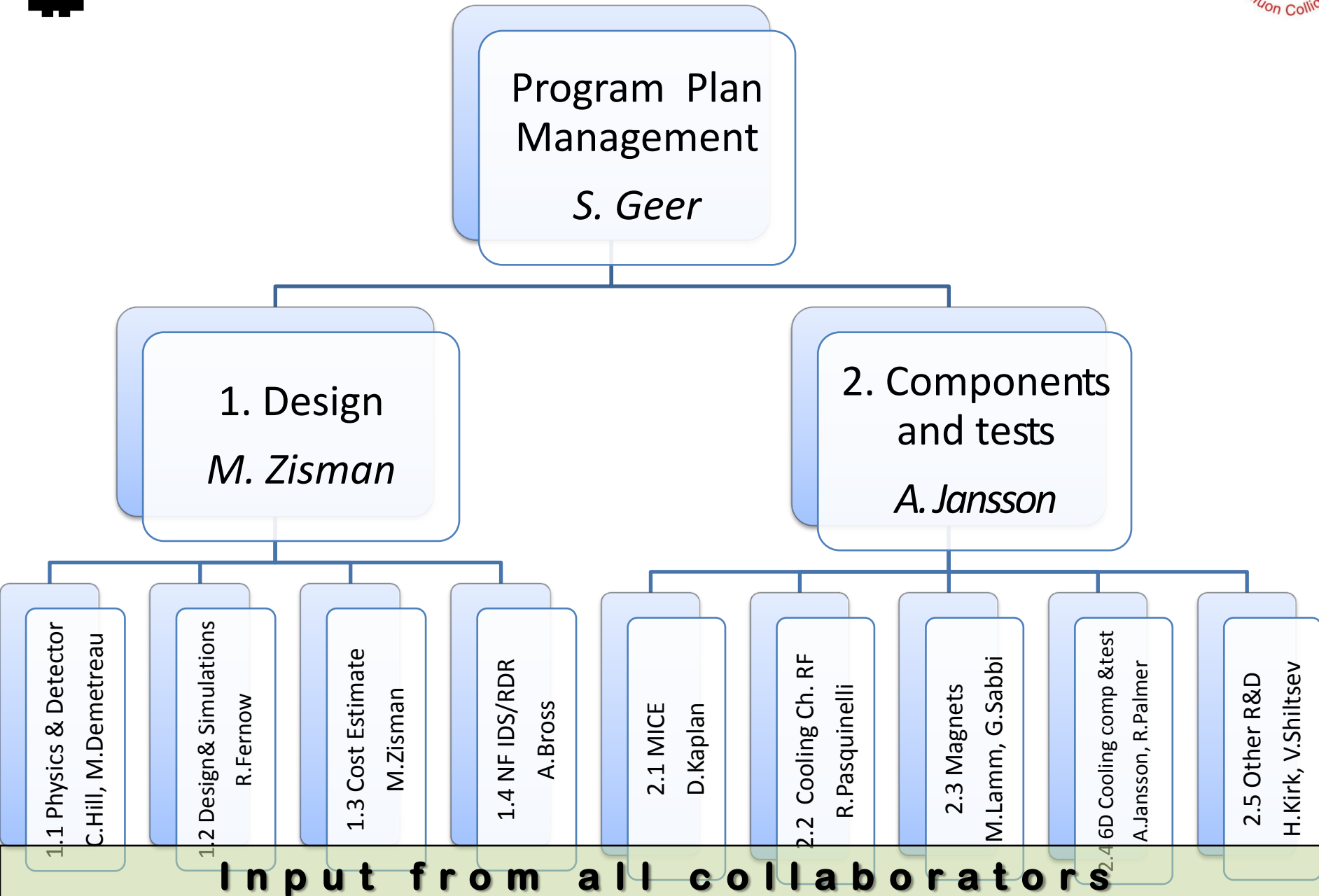
- **High level deliverables by 2013:**
 - ✓ Muon Collider design report at the level of ZDR (physics, detectors, end-to-end simulations, cost estimate, etc)
 - ✓ Component development and tests needed to inform MC-ZDR
 - ✓ Neutrino Factory RDR (as part of International effort)
- **Calls for significant (x3) increase of support**
 - to 20-25M\$/yr; total cost ~100M\$
- **The proposed U.S. National Program will involve:**
 - BNL, FNAL, LBNL, ANL, ORNL, JLab and SLAC
 - Universities (those in NMFCC/MCTF and new)
 - SBIR companies
 - International partners

MCCC: Muon Accelerator R&D Program



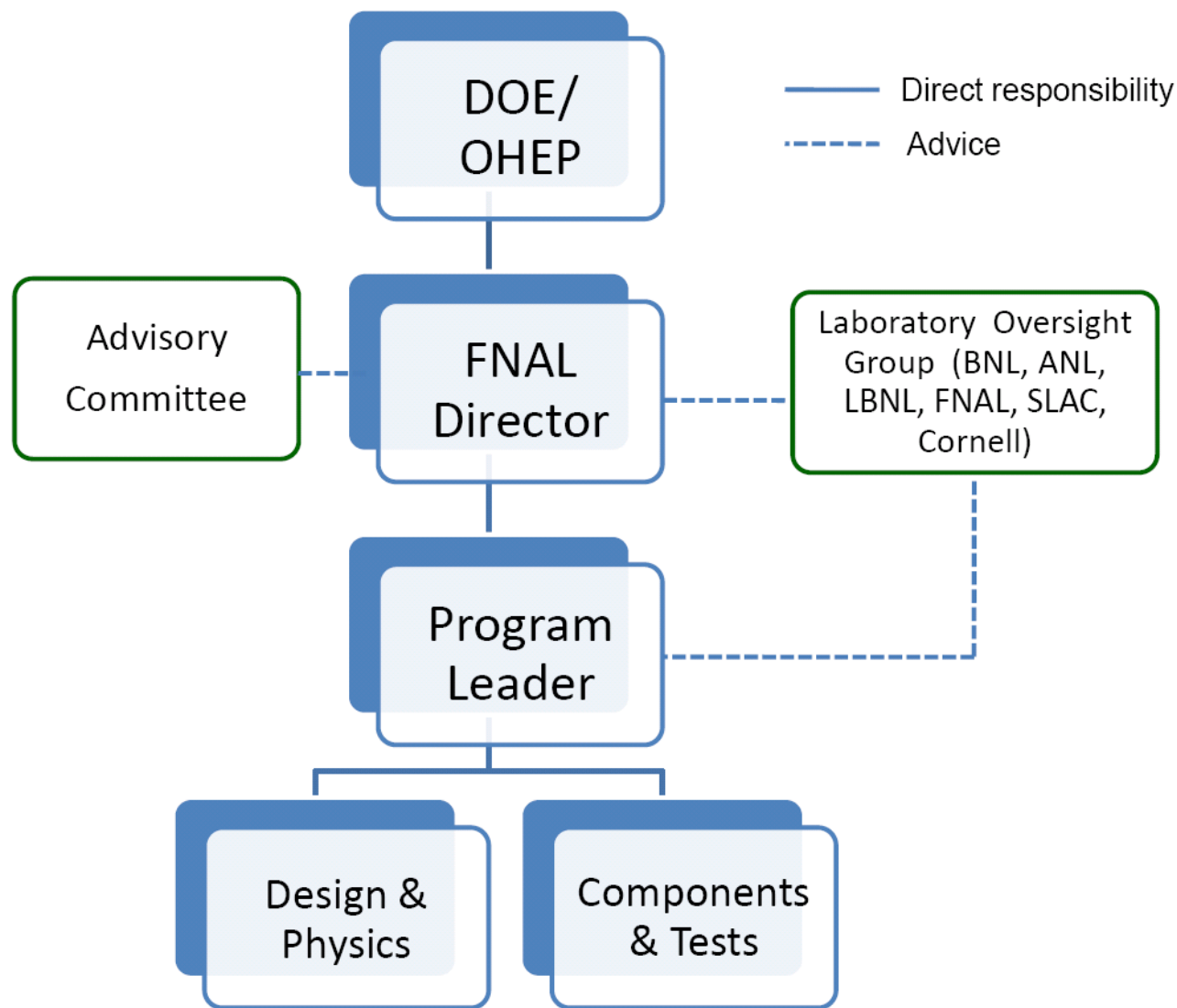


5-year R&D Planning Team





(A Possible) Organization of Muon R&D Program





Agenda



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|-------|---|-------------|---------|
| 8:30 | Executive session [15 min] | | |
| 8:50 | Introduction: Muon Plan and Agenda | Shiltsev | [10+5] |
| 9:00 | MC-ZDR and NF-RDR: high level objectives and deliverables | Zisman/Geer | [10+5] |
| 9:20 | Components and tests: high level objectives and deliverables | Jansson | [10+5] |
| 9:40 | MC-ZDR: Theory & Detector R& Plan | Demarteau | [15+5] |
| 10:00 | MC-ZDR: Design & Simulations R&D Plan | Fernow | [15+5] |
| 10:20 | NF-RDR: R&D plan | Bross | [15+5] |
| 10:40 | coffee break [20 min] | | |
| 11:00 | US-MICE: R&D plan | Kaplan | [15+5] |
| 11:20 | Cooling Channel RF R&D plan | Pasquinelli | [15+5] |
| 11:40 | Magnets: R&D plan | Lamm | [15+5] |
| 12:00 | 6D cooling section tests plan | Jansson | [15+5] |
| 12:20 | Other R&D: plan | Kirk | [15+5] |
| 12:40 | The 5 yr plan: Outlook, Resources, Schedule | Geer | [20+10] |
| 1:10 | Lunch [50 min] (working, box lunch) | | |
| 2:00 | Open Discussion (on base of MUTAC questions to be collected by Shiltsev) /Recommendations [60min] | | |