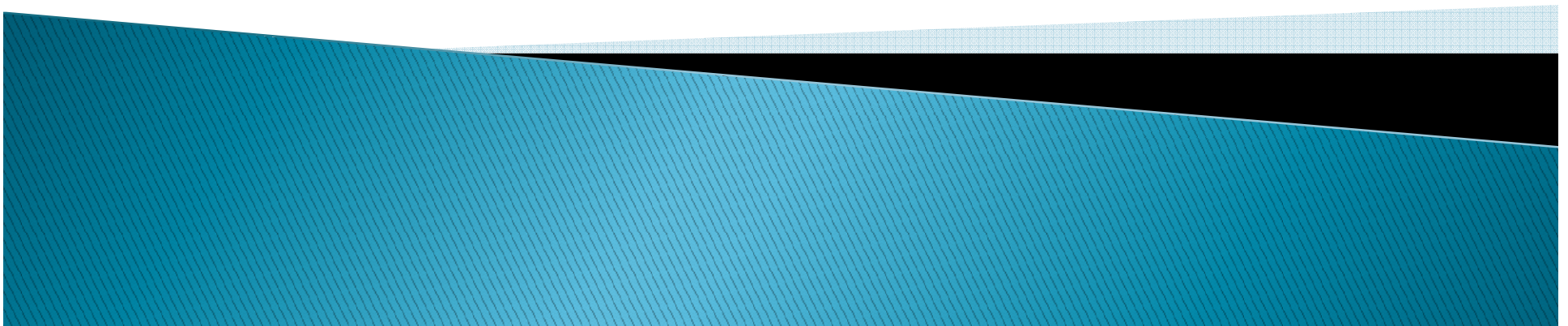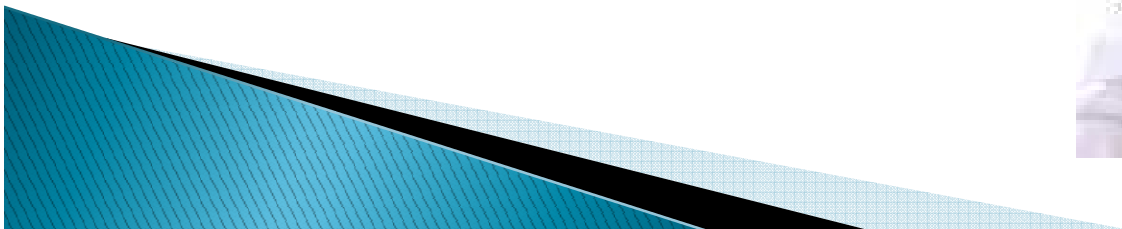# Management of technology and development
– Delphi method –
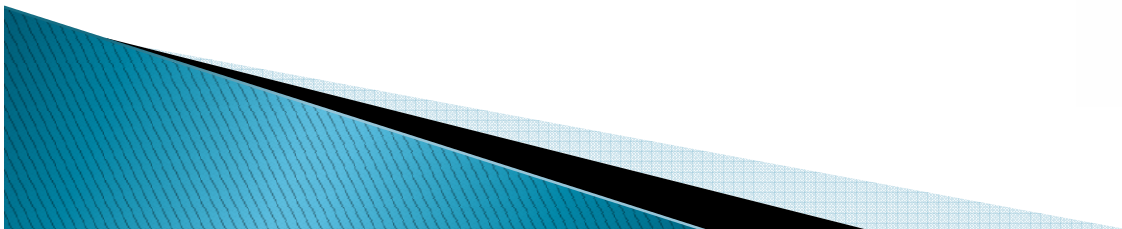
Sanja Marinkovic

Delphi Method

Advantages of group opinion

Delphi Method

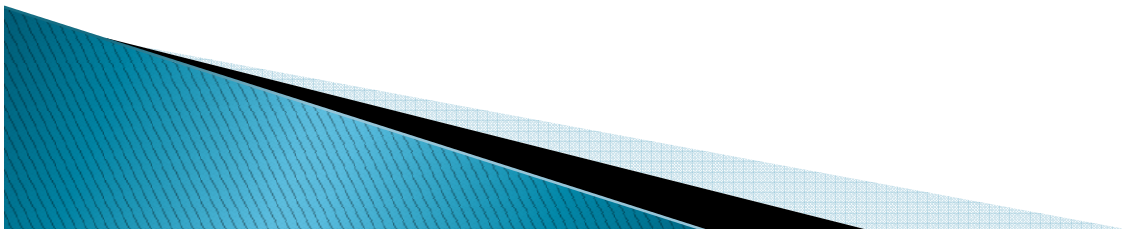Obstacles which appear in group work

Delphi Method

Exploratory and intuitive method

Uses advantages of group opinion
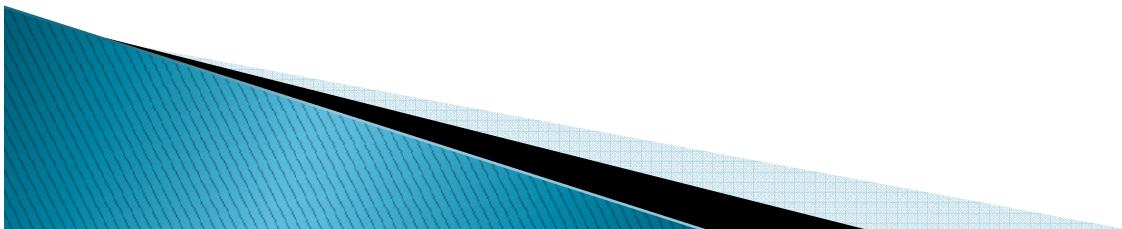
Overcomes obstacles which appear in group work

Some facts

▶ **NAME:** Oracle of Ancient Greece

▶ **FIRST USED:** in 1950s by RAND Corporation in the USA

▶ **COLD WAR APPLICATION:** Question related to likely number of USSR nuclear missiles

▶ **FIRST PUBLISHED STUDY:** *Report on a Long-Range Forecast* by Gordon and Helmer
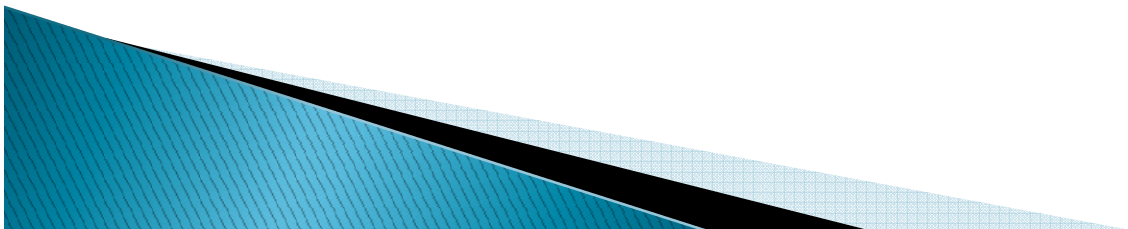
Delphi Method

Qualitative research method with quantitative elements

Relies on the judgment of a panel of experts

Iterative process, taking place over a number of 'rounds'
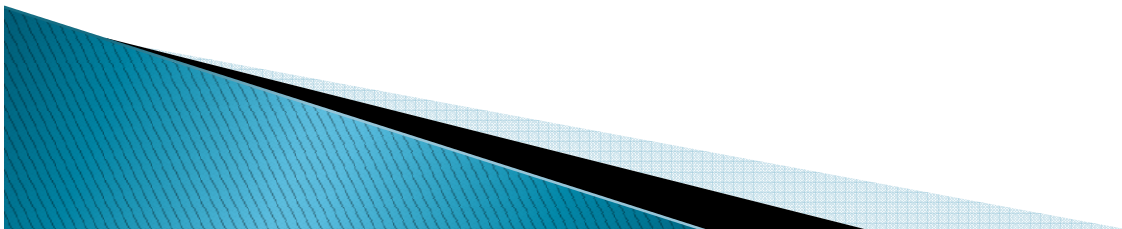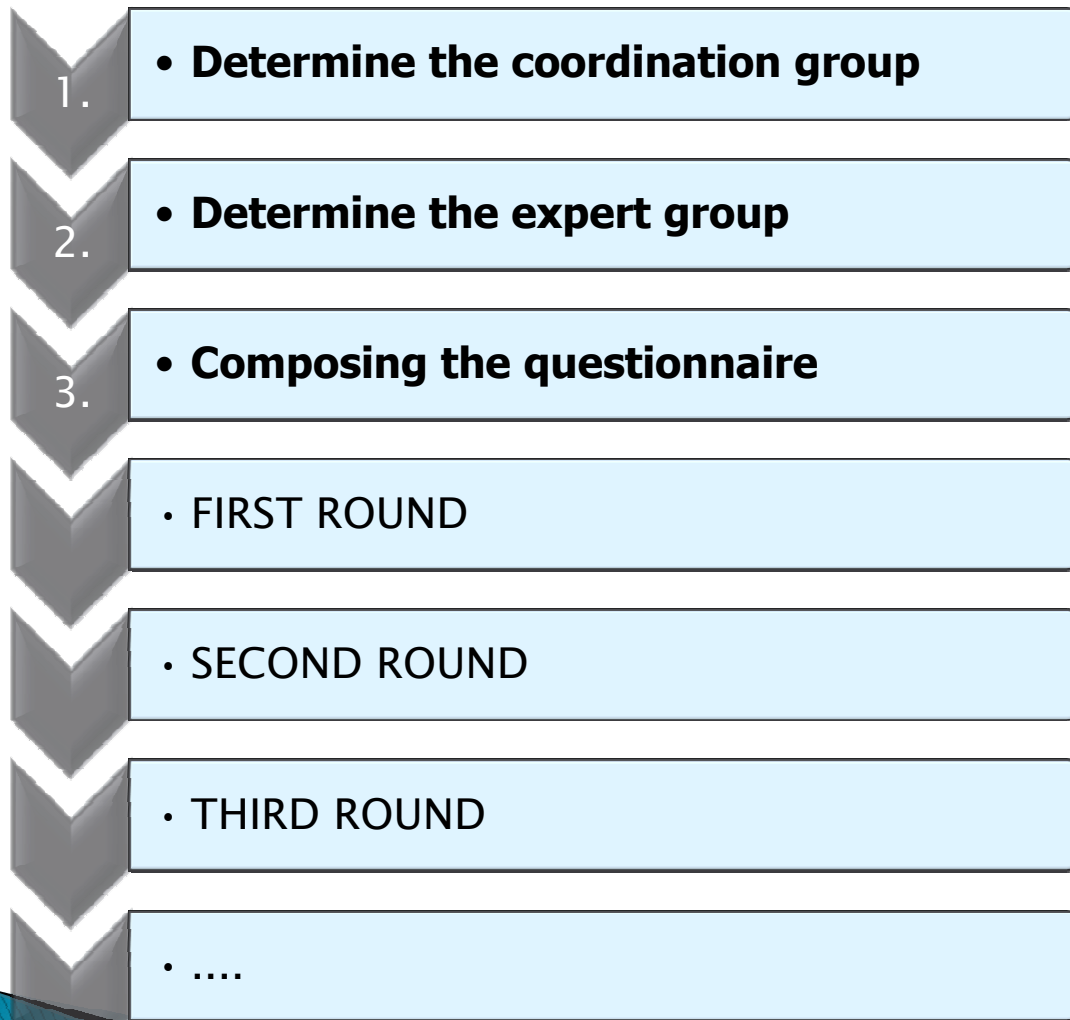
Delphi Method

Key features

Anonymity of individuals

Iterative process, 'rounds' with controlled feedback

Statistical calculation

Questionnaire

Steps in conducting Delphi Method

1. • **Determine the coordination group**

2. • **Determine the expert group**

3. • **Composing the questionnaire**

• FIRST ROUND

• SECOND ROUND

• THIRD ROUND

• ….

ROUND:

Sending questionnaires

↓

Filling in the questionnaires

↓

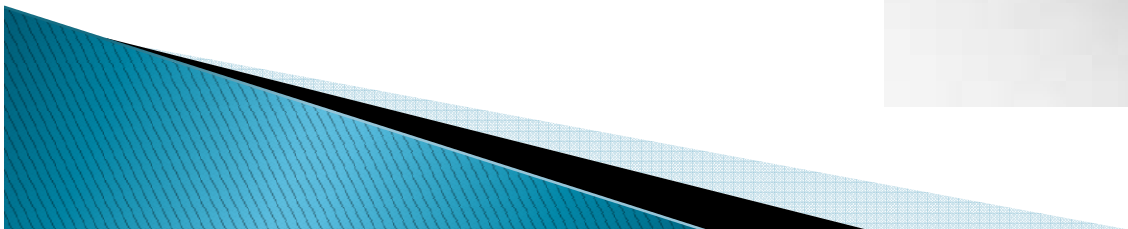Statistical calculation and feedback to expert group
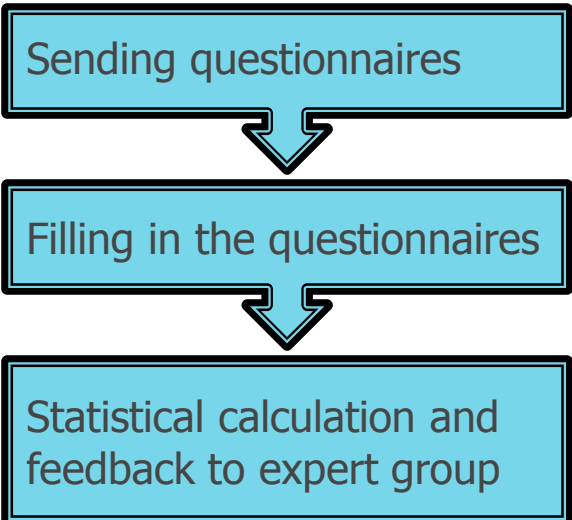
Questions in Delphi

- TIME
- NEEDS
- POSSIBILITIES
- EFFECTS
- CONDITIONS

Questions in Delphi

- Questions are generally of three types:
  - Forecasts on the **occurence of future developments** (when the event is expected to occur or future value of some parameter);
  - **Desirability of some future state** (weather an event ought to occur);
 - **The means for achieving or avoiding a future state** (who, what, when, where, how much)
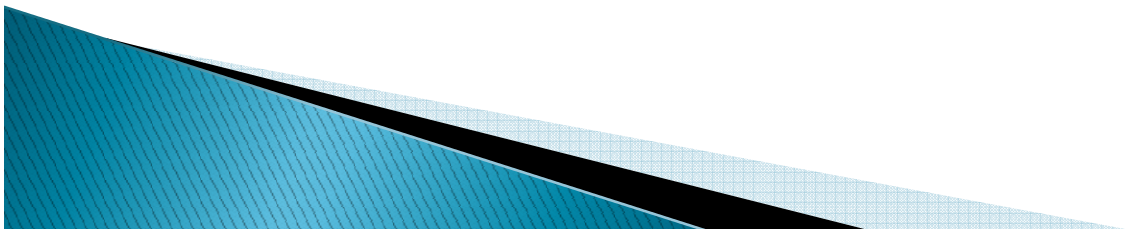
Questions in Delphi - Examples

- When do you expect introduction of on-line exams at our faculty?
- When do you expect introduction of on-line exams at 50% of faculties at Belgrade University?
- When do you expect the end of printed documentation in primary healthcare?
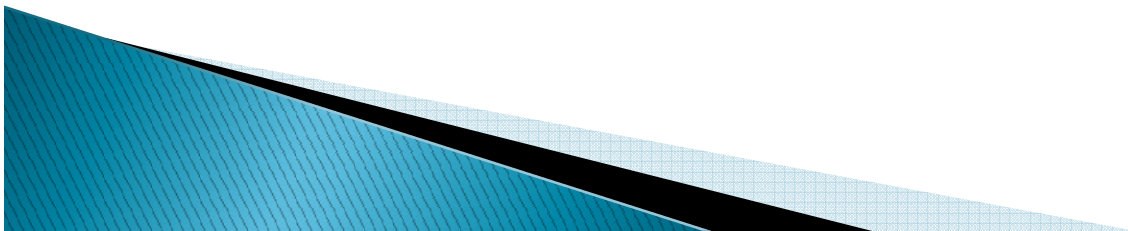
Questions in Delphi

- Phrasing of questions is important.
- Example: When will bicycles be made mosly of plastics and used in urban transportation?
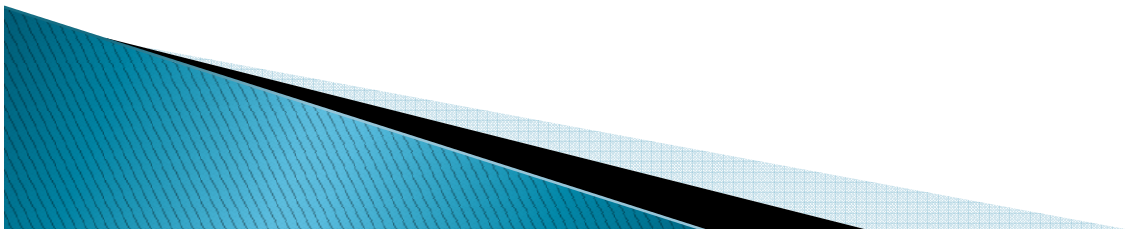
Questions in Delphi - examples

- When will 80% of Bank customers start using electronic banking services?
- When will the Bank introduce SMS message system to upgrade communication flows with the clients?
- When will investment in research and development in ICT sector in Serbia reach the level of EU countries?
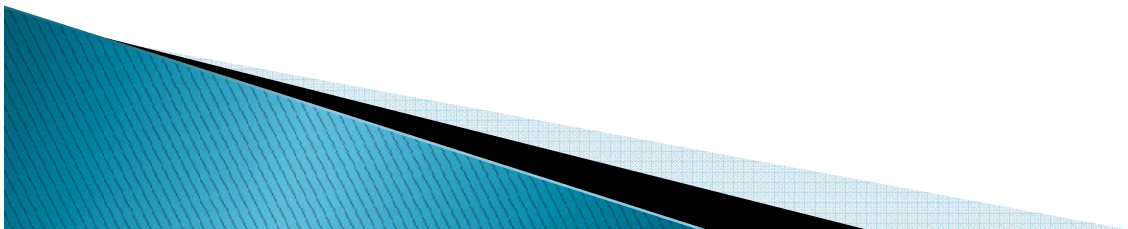
Questions in Delphi - examples

▸ When will Pay Pal service be completely available in Serbia?

▸ When can we expect implementation of digital signature in 80% of banks in Serbia?
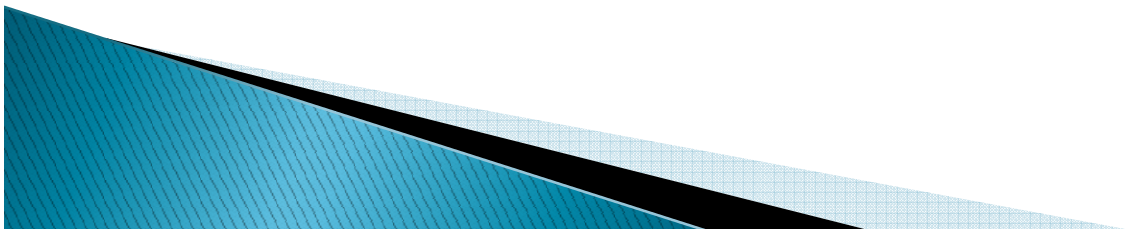
Questions in Delphi - examples

▸ When do you expect introduction of RFID card:
▸ - instead of an ordinary student's booklet,
▸ - for presence (time tracking) at lectures,

▸ When do you expect that Universities are going to publish all obligatory literature in form of e-books?

▸ When do you expect that a student can pay the fee via Internet but using the RFID card, combined with some kind of security PIN?
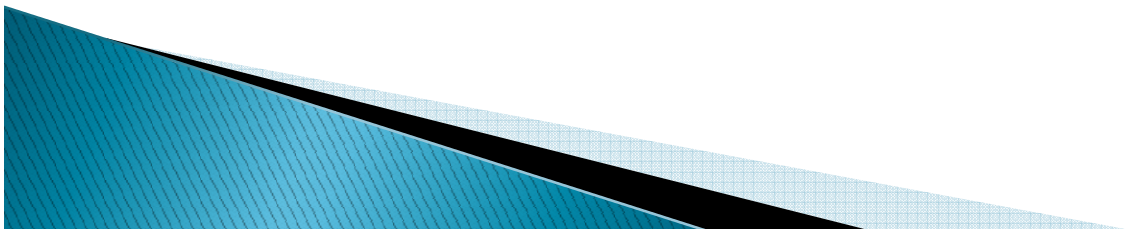
Exercise –20 min

▸ Think about a company/business.
▸ Prepare the list of 5 questions to predict future technology and environment development.
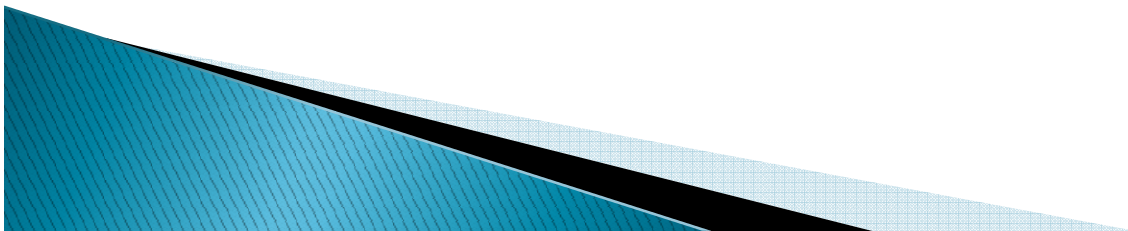▸ When?
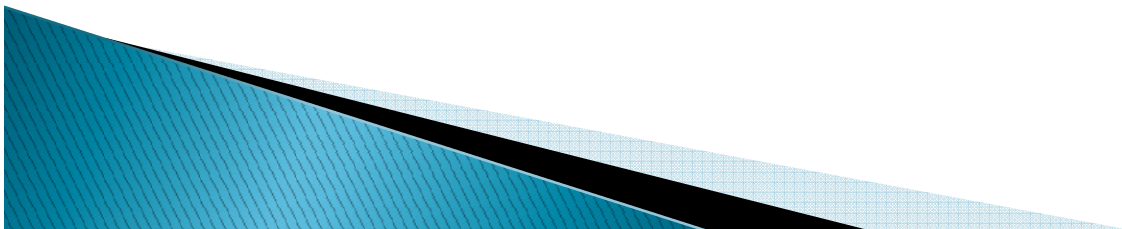
Presentation of results

Statistical measures

Graphical presentation

Verbal description

Application of Delphi method is adequate

when we need:
- Subjective assessment
- The experts of different profiles
- Heterogeneous participants
- Large groups …

if there are :
- Difficulties when working face to face
- High travel costs
- Difficulties due to different value systems
- Limited time
- Language barriers
- Problems related to domination
- Disagreements ...