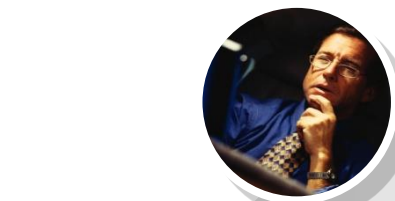


TRANSFER OF TECHNOLOGIES



Al-Farabi Kazakh National University



What is transfer of technologies?

Transfer of technologies (TT) is distribution of applied technological knowledge: production methods, progressive ideas, models, algorithms, and also innovative products as within industry, between sectors, regions, or between countries.



What is transfer of technologies?

Transfer of any technology suggests a mandatory transfer of the technology to organization (legal entity), which carries out its industrial implementation, although it is not necessarily to be related to the earning a profit when using the technology (eg, when using TT in education, health, or for protection of environment).



Why universities need transfer of technologies?



Transfer of technologies improves the probability of new discoveries and innovations, new methods of application of natural materials and new methods in science to help in solving of industrial and medical problems that lead to creation of useful products, processes and services in Kazakhstan and in the world, to creation of new relations between researchers, to exchange of materials, information and specialists with industry, adding new perspectives for university research programs and creating new and unique opportunities for staff and students. Also, transfer of technologies can lead to an influx of cash payments for licenses (royalties).



Why universities need transfer of technologies?



Students of engineering, biotechnology, IT and business specialties, showing a great interest and desire to create new technologies, to study the basics of the establishment of companies and actively cooperate with teachers and industry representatives in order to realize the potential of new business models, often understand that activity associated with the transfer of technologies gives them a push for career growth in fields that will form the backbone of economy in the XXI century.



Forms of technology transfer

Internal transfer - the transfer of technologies from one organizational unit to another

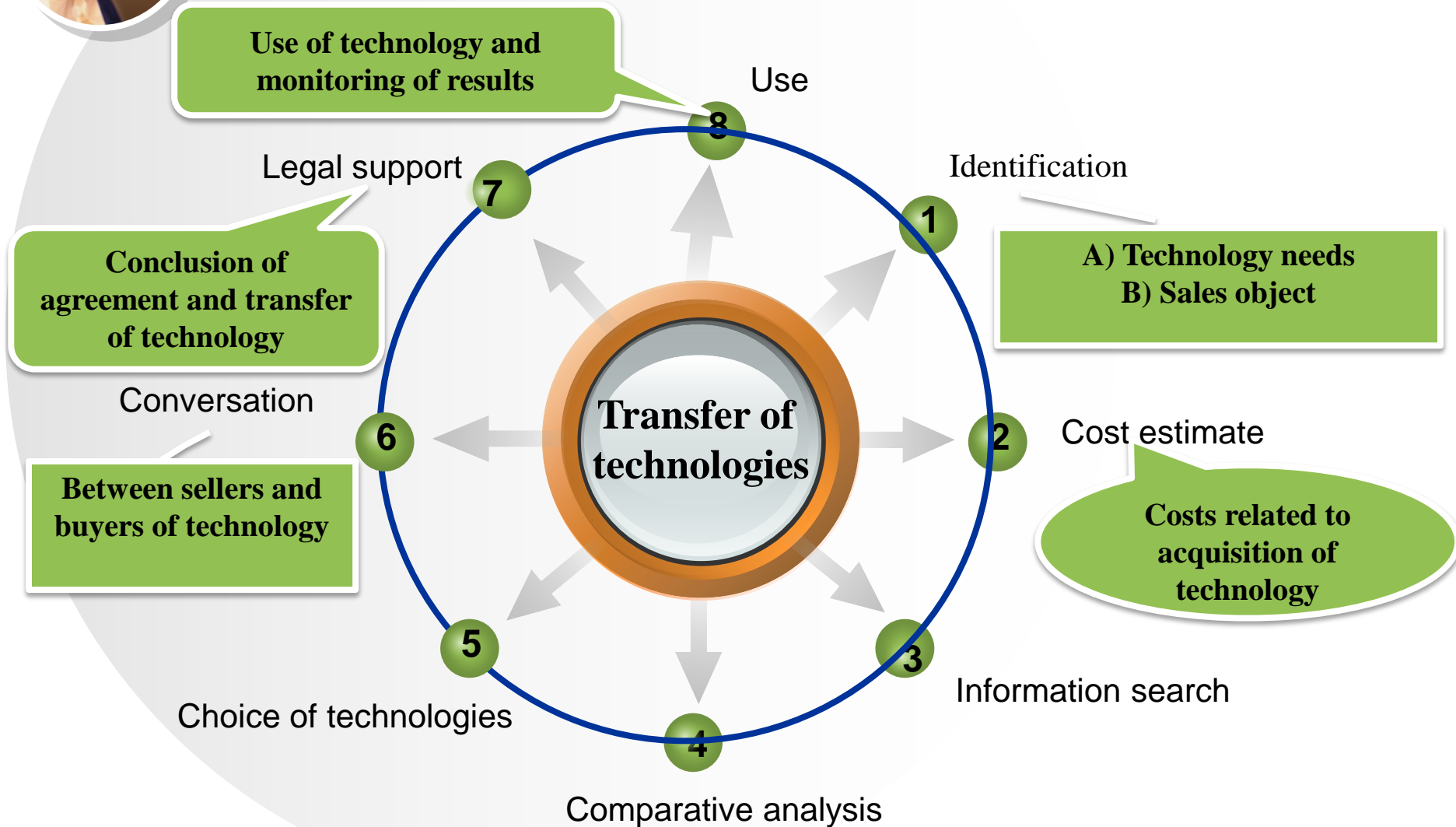
Quasi-internal transfer - the movement of technologies within alliances, unions, holdings, corporations and other associations of independent legal entities

External transfer is a process of technology diffusion, in which independent experts (TT experts), developers and consumers of technologies participate.

Transfer of technologies

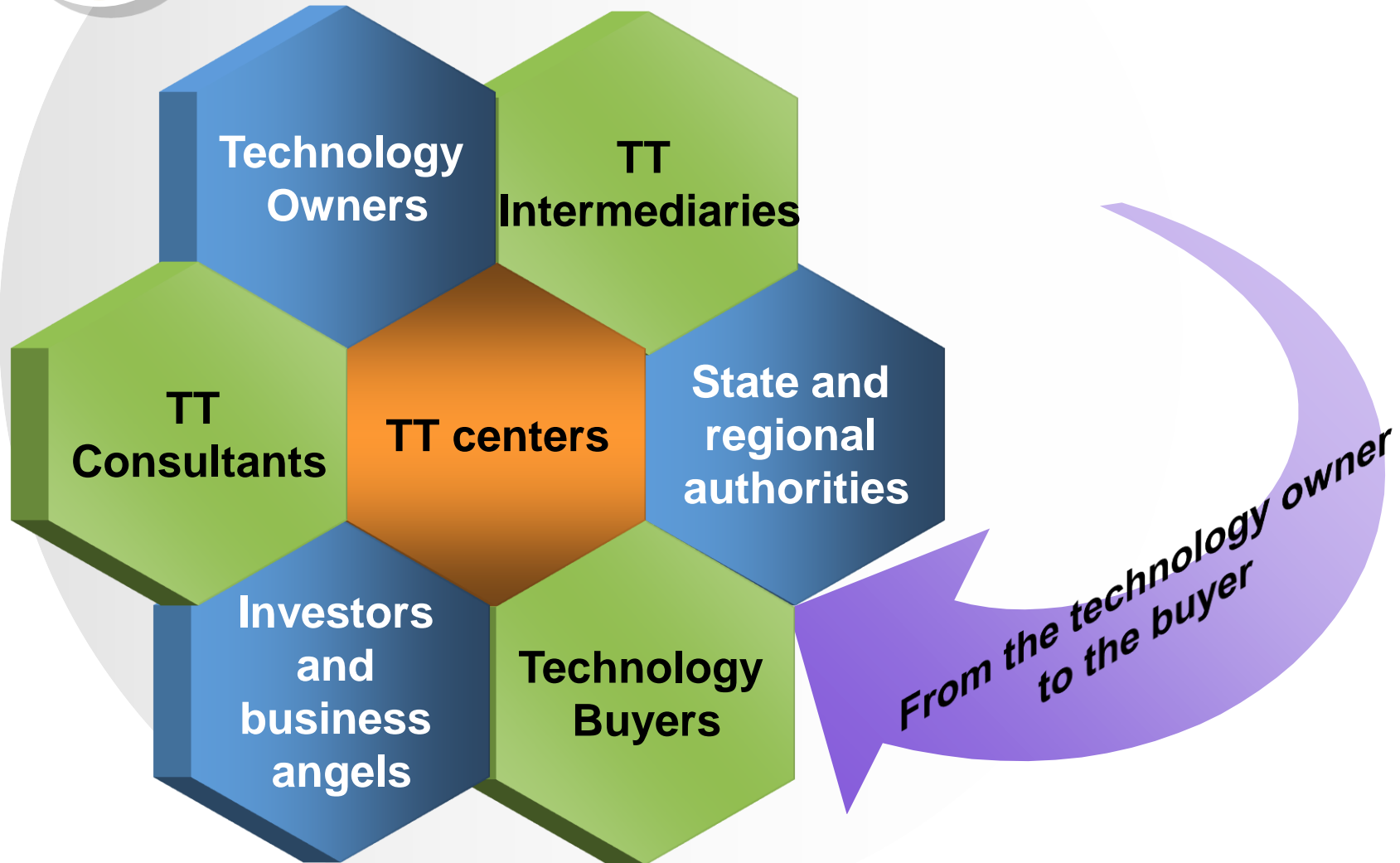


Conceptual model of the main stages of technology transfer





Participants of Technology Transfer





Areas of work for Transfer of Technologies

- 1 Ordering, assessment and protection of the existing intellectual property in the university/research institute
- 2 Active promotion of information about KazNU scientists' developments and OIC, having commercial potential
- 3 Providing information, financial, marketing and other consultations to developers and potential buyers of intellectual property in order to remove obstacles in commercialization of technologies on the basis of Al-Farabi KazNU Technopark
- 4 Involvement of orders for research from the commercial sector both in Kazakhstan and foreign extrabudgetary funds by directors of research institutes, deans and deputy deans, heads of departments on research and international collaboration activities
- 5 Development of business partnership with domestic and foreign companies and academic institutions engaged in TT through the Al-Farabi KazNU Technopark.



Main characteristics of Technology Transfer

Forms of Technology Transfer

Non-commercial transfer of technologies (transfer of scientific and technical information through scientific and technical publications, conferences, migration of scientists and specialists from one country to another without compensation for their training)
Commercial forms of technology transfer (scientific and technical knowledge trading operations, or cooperation on their basis are associated with the transfer of technologies for manufacturing products, services or improving their production processes)

Types of Technology Transfer

- **Inside the company** (including transfer between departments and offices);
- **Between different companies** (including intra-industry and inter-branch);
- **Between countries**
- **Technology transfer from universities** (to existing firms and corporations);
- **Creation of new innovation firms** (on the basis of university, research institute, scientific center, design bureau or with participation of university, for example in technopark, etc.)

Strategies of Technology Transfer

- **Offensive** (a need to implement a significant number of scientific and technological developments and use of new technologies);
- **Defensive** (maintaining stability of the company's development);
- **Absorbing** (capture market share and save profits by reducing production costs);
- **Intermediate**
- **Individual**

Tools of Technology Transfer

- Joint projects;
- Memorandums of Understanding and research contracts;
- Conclusion of license agreements;
- Sale of patents;
- Transfer of a know-how;
- Recruitment, staff exchanges;
- Conclusion of agreements on use of facilities;
- Providing technical assistance;
- Purchase of ready-made technology;
- Technology leasing;
- Spread of information

From R&D to Business Incubation



**R&D
results**



Technopark

Project Support Center

- Examination and selection of projects;
- Interaction with research institutes and scientific centers, student business incubators at faculties.

- Search for innovative projects;
- Drawing up business plans;
- Carrying out of marketing researches.

Commercialization Office

- Feasibility Study Development
- Commercialization of developments
- Licensing
- Patent Support
- Technology Transfer

- Involvement of sources of investment and financial support (investors, venture capital, etc.)
- Technological audit and broker services