

THESIS 1:

INNOVATION BEYOND R&D DEPARTMENTS

*»In 2030, openness, the ability to learn and cooperation
will be the guiding principles of innovation.«*

Openness and flexibility

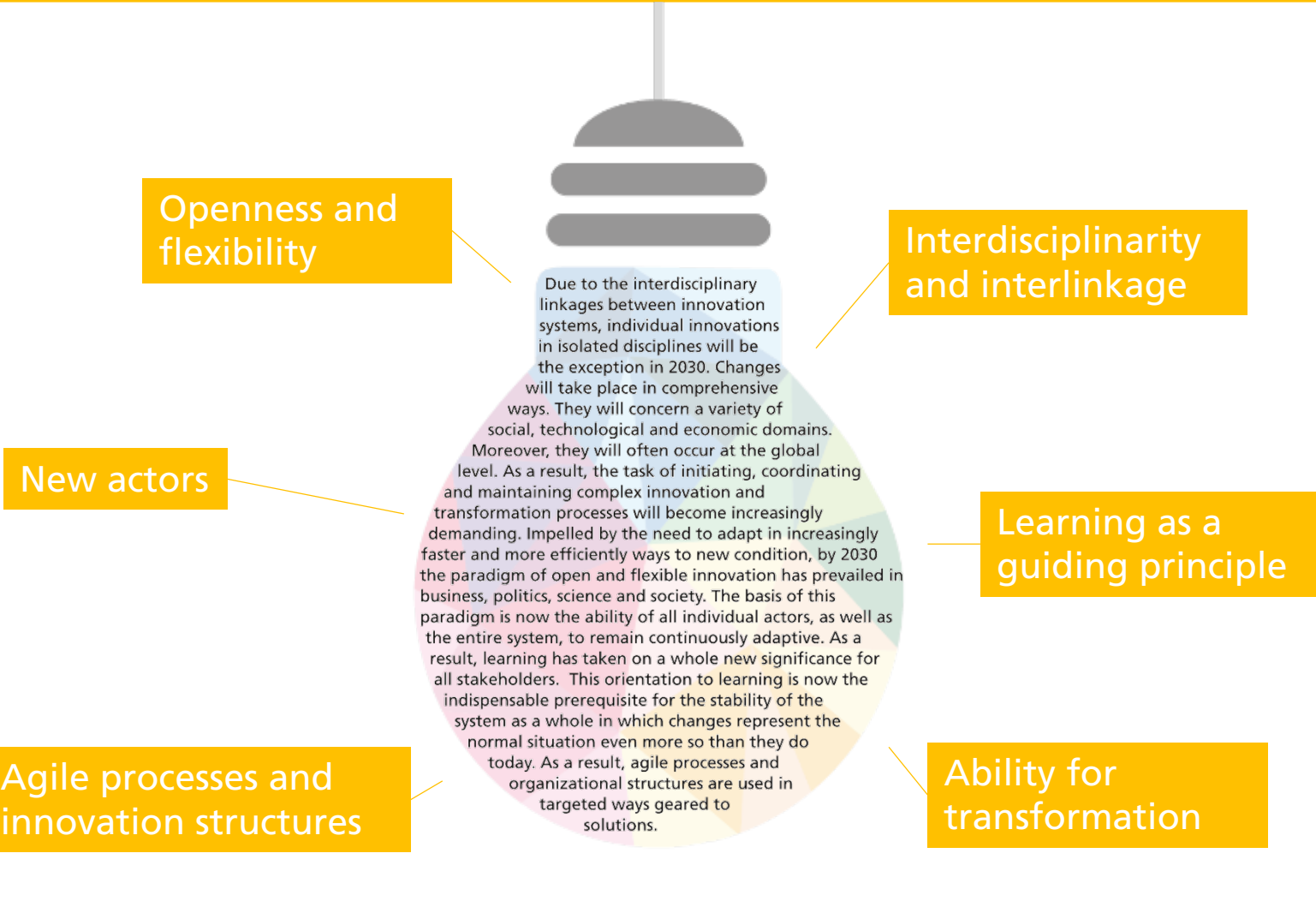
Interdisciplinarity and interlinkage

New actors

Learning as a guiding principle

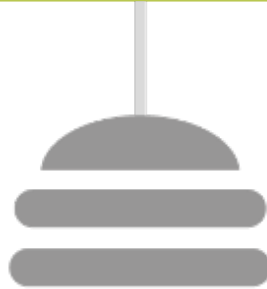
Agile processes and innovation structures

Ability for transformation



Due to the interdisciplinary linkages between innovation systems, individual innovations in isolated disciplines will be the exception in 2030. Changes will take place in comprehensive ways. They will concern a variety of social, technological and economic domains. Moreover, they will often occur at the global level. As a result, the task of initiating, coordinating and maintaining complex innovation and transformation processes will become increasingly demanding. Impelled by the need to adapt in increasingly faster and more efficient ways to new conditions, by 2030 the paradigm of open and flexible innovation has prevailed in business, politics, science and society. The basis of this paradigm is now the ability of all individual actors, as well as the entire system, to remain continuously adaptive. As a result, learning has taken on a whole new significance for all stakeholders. This orientation to learning is now the indispensable prerequisite for the stability of the system as a whole in which changes represent the normal situation even more so than they do today. As a result, agile processes and organizational structures are used in targeted ways geared to solutions.





THESIS 2:

INTEGRATED SOLUTIONS AND VALUE CREATION SYSTEMS

*» In 2030, integrated solutions will be the focus of
innovation activities.«*

User-centered
business models

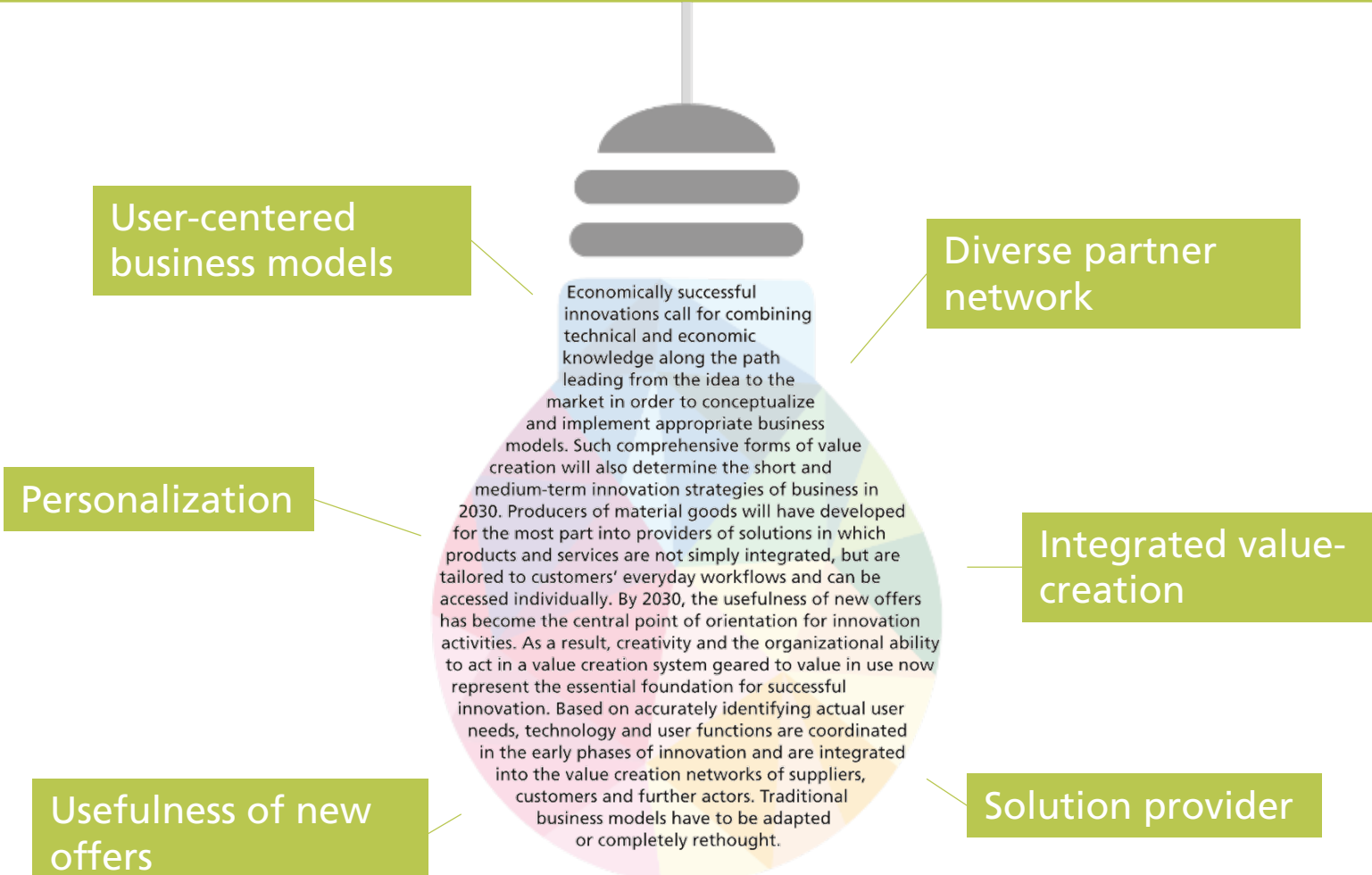
Personalization

Usefulness of new
offers

Diverse partner
network

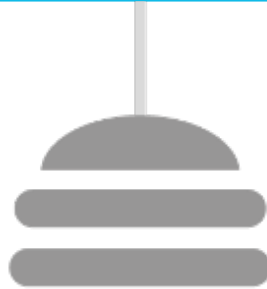
Integrated value-
creation

Solution provider



Economically successful innovations call for combining technical and economic knowledge along the path leading from the idea to the market in order to conceptualize and implement appropriate business models. Such comprehensive forms of value creation will also determine the short and medium-term innovation strategies of business in 2030. Producers of material goods will have developed for the most part into providers of solutions in which products and services are not simply integrated, but are tailored to customers' everyday workflows and can be accessed individually. By 2030, the usefulness of new offers has become the central point of orientation for innovation activities. As a result, creativity and the organizational ability to act in a value creation system geared to value in use now represent the essential foundation for successful innovation. Based on accurately identifying actual user needs, technology and user functions are coordinated in the early phases of innovation and are integrated into the value creation networks of suppliers, customers and further actors. Traditional business models have to be adapted or completely rethought.





THESIS 3:
**FULLY DIGITIZED
INNOVATION PROCESSES**

*»In 2030, innovation processes
will be fully digitized.«*

Fully digitized support

Machine learning
and data integration

Human
creativity

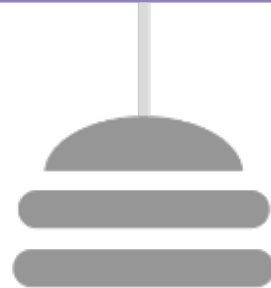
R&D department
as control center

Artificial
Intelligence

Digital twin

The expectation is that in 2020 it will be possible to initiate and implement innovations in fully digitized ways. The development in this direction can already be seen, for example, in the increasing importance of digital twins in production technology. Digital twins make it possible to apply usage data for continuous improvement through defined interfaces, thereby enabling solutions to be produced, commissioned and tested virtually before they are actually realized. Based on real-time data and accurate algorithms, even complex validations or tests can be replaced by simulations. By 2030, capabilities of artificial intelligence have developed far beyond current levels. Intelligent machines now learn complex interrelationships from more extensive sets of data without having to be programmed specifically for this purpose, thereby increasing their robustness against errors and anomalies. On the other hand, they now possess a greatly enhanced ability to anticipate and take into account possible developments in business, politics, science and society. By 2030, R&D departments have become integrative control centers for digital innovation processes.





THESIS 4:

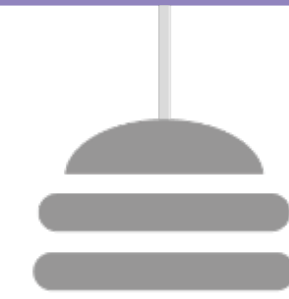
APPLICATION OF KNOWLEDGE ACROSS DISCIPLINES

*» In 2030, knowledge will be open to all –
the challenge will be to apply it profitably.«*

Open science and open access

Interdisziplinarität

Acceleration, flexibility, openness



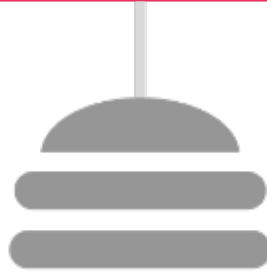
"Open Science" is now the order of the day. This is a result of the increased complexity and interdisciplinarity of scientific questions, combined with the claim of scientific findings to reproducibility. Both how scientific findings are produced, and the knowledge generated itself have become transparent. With a few exceptions, publications, research data and software in 2030 are freely accessible. This makes it possible for all stakeholders in innovation systems to utilize knowledge across disciplinary boundaries, thereby reducing the costs of creating knowledge, on the one hand, and accelerating scientific progress, on the other. Decisive for success in innovation is now the ability to find relevant knowledge in targeted ways. The knowledge that has become freely accessible will also be used by industry. Open, interdisciplinary knowledge is now applied via "Open Innovation," resulting in holistic solutions that are embedded successfully in social systems and interactions. By 2030, cross-disciplinary knowledge and experts can be identified quickly and in targeted ways, thus making it easier to find integrated solutions to the major social challenges.

Profitable application

Integration in social systems

Knowledge and experts easy to find





THESIS 5:

EUROPEAN DIGITAL ECOSYSTEM

»In 2030, Europe will enjoy unique global competitive advantages in terms of data security and sovereignty.«

Cultural diversity

Shared values

Data security and
sovereignty

Positive influence on
digital value creation

European
standards

Social discourse

By 2030, the digital transformation will already have led to far-reaching structural changes in science, business and society: The production, distribution and application of knowledge are now shaped by artificial intelligence and autonomous systems. Open Online Courses have become an integral part of the education system. Economic transactions are conducted on online platforms, leading to the dissolution of classical boundaries between industries and sectors. Data-based services play an essential role in value creation processes for which data is a valuable raw material. Europe has seized the opportunities offered by this transformation to become the world leader in data security and sovereignty. In developing its digital ecosystem, by 2030 Europe will have benefited from the productive and value-creating power of its cultural diversity, on the one hand, and from its shared values, on the other. Thus, national standardization initiatives such as the "Industrial Data Space" have developed into a European control and regulation system to meet the requirements that many non-European companies, institutions and private individuals also place on data sovereignty, protection and governance.

