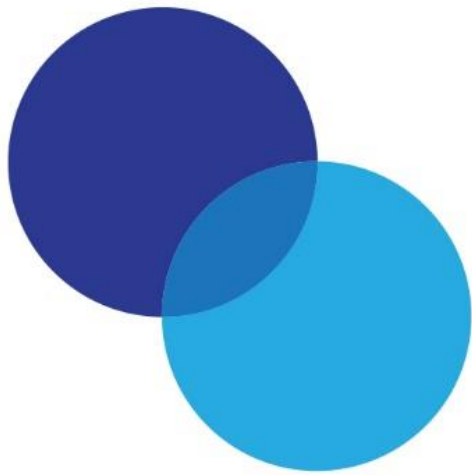


Impact of Research

Introduction to the new centre
OSIRIS – The OSlo Institute for
Research on the Impact of
Science



OSIRIS

OSLO INSTITUTE FOR RESEARCH
ON THE IMPACT OF SCIENCE



Statistisk sentralbyrå
Statistics Norway

ingenio CSIC-UPV
Instituto de gestión de la innovación
y del conocimiento

MANCHESTER
1824
The University of Manchester

UiO : TIK – Senter for teknologi, innovasjon og kultur
Det samfunnsvitenskapelige fakultet

Summary

- OSIRIS will study the effects that are created when research is used – we call this *impact*
- We will in particular look at impact of research (or lack of it) within health, industrial development and policymaking
- We will primarily study the use and users rather than the research in itself – and we see impact as a process rather than outcome
- We will work with relevant user partners

About OSIRIS

- Funded by the ForInnPol programme in The Research Council of Norway
- ForInnPol moved from supporting projects to supporting two long-term (5+3 years) centres
- TIK Centre for Technology, Innovation and Culture at the University of Oslo is the host; start-up seminar October 2016
- Research partners: Statistics Norway (SSB), University of Manchester and Polytechnic University of Valencia
- In addition user partners from the health and welfare sector, policy, research and industry
- Centre leader: Magnus Gulbrandsen, deputy leader Taran Thune

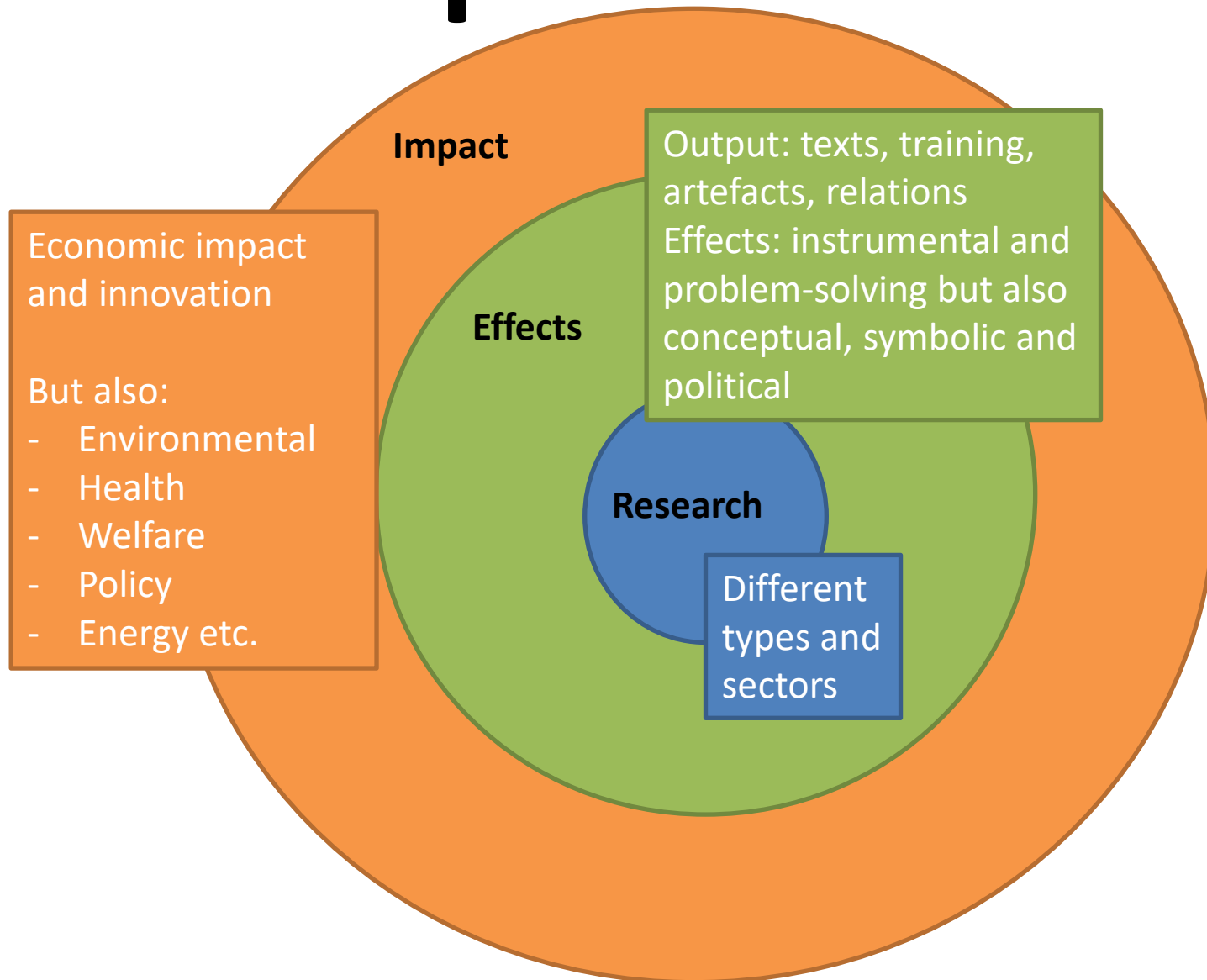
Impact on the agenda

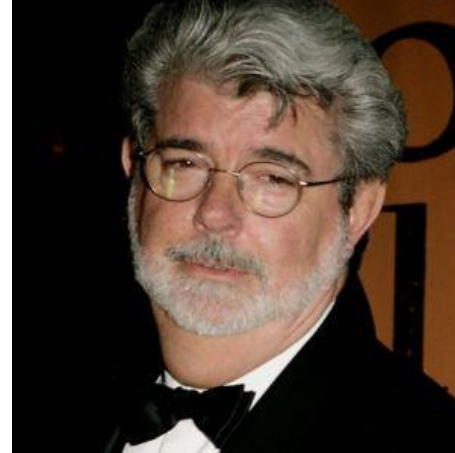
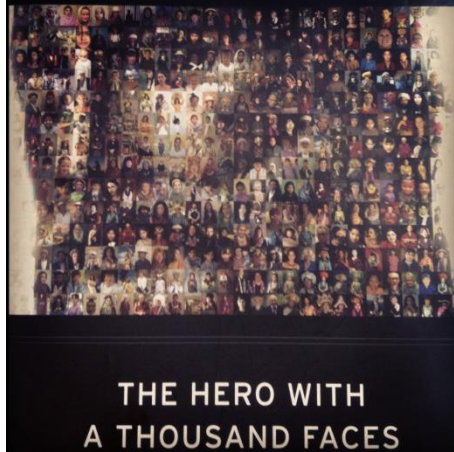
- Society supports research based on a belief that this will yield positive effects and values for society
- This is increasingly referred to as impact, especially tied to public research
- Many countries measure and reward research organisations for impact, this is on its way in Norway too (e.g. humanities evaluation, social science institute evaluation)
- Many organisations find it difficult to use research and to see clear effects of collaboration with researchers

Complex questions

- Why is it seemingly so difficult to put research into use in sectors such as health/welfare, schools and construction?
- Is it “wrong” that users pick up some research results rather than others?
- Is it relevant to say that there are heaps of research-based knowledge lying around waiting to be applied?
- If there is a gap, what is the underlying problem?
- Why is it so difficult to demonstrate and make visible the link between research and utility/value creation?
- In which situations should research *not* have an impact?
- These are complex, contested and practical questions that matter for everyone engaged in research

Multiple dimensions



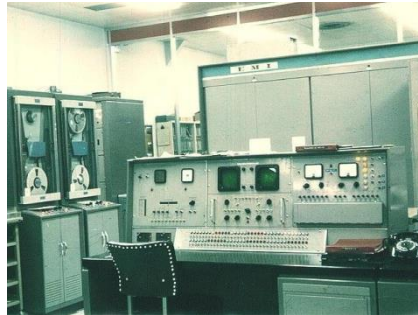
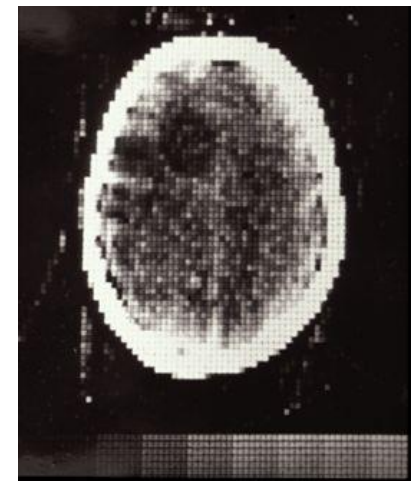
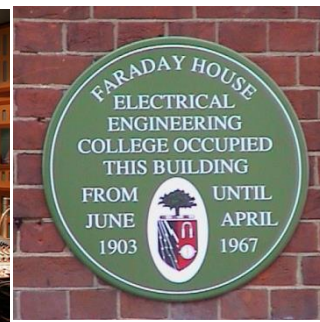


- George Lucas was very much inspired by Joseph Campbell's book "The hero with a thousand faces" (a study in comparative religion) when he created the Star Wars universe
 - The monomyth
 - The hero's journey
 - Metamorphosis
- "Campbell was my Yoda"

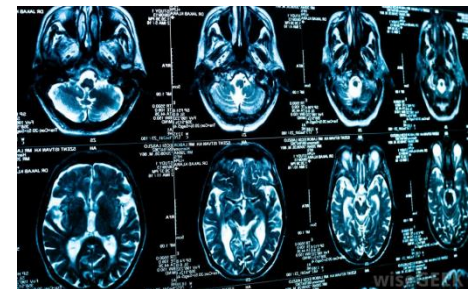


Measurement problems

- **Attribution:** research is a “standing on the shoulders of giants” activity; Campbell was highly influenced by e.g. Freud and Maslow – should they have recognition for Star Wars?
- **Latency:** impact happens mostly after a very long time; 30+ years between Campbell’s book and Star Wars; 10-50 years in many studies of agriculture and health
- **Causality:** impact is often the result of complex and multifaceted interactions where influences and effects go in all directions
- **Types of impact:** should we view Star Wars primarily as an economic phenomenon or something else?



**Godfrey
Hounsfield**

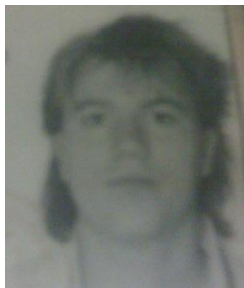


The first CT scanner

- Hounsfield worked for EMI with technological development; he was trained as an engineer from a practical college with no formal research qualifications
- Became involved in radar research during WW2 and later in the construction of UK's first transistorised computer before he moved to medical technology
- EMI with huge revenues from Abbey Road Studios, Beatles etc. had a risky technological development strategy
- Many scientific, technological, economic and organisational aspects influenced the CT scanner development process
- Hounsfield received the Nobel Prize in medicine in 1979 for this work

Impact as a process

- Resistance: both the doctors and EMI were sceptical about Hounsfield's projects in medical technology
- Boundary crossings: research and technology crossed disciplinary (physics, electronics, medicine, software) and sectoral (industry, hospital, university) borders
- Complexities and tensions at different levels (Garud et al. 2013)
 - Evolutionary complexity (path dependency, lock-in, coevolution/coproduction etc.)
 - Temporal complexity (delays, asynchronous and diachronous elements)
 - Relational complexity (sectorial borders, actors)
 - Cultural complexity



Preconditions for impact

- Firms/users/actors: existence of need/problem with clear ownership, absorptive capacity, creativity, adoption, past experiences
- Networks: existence of relationships, platforms for collaboration and technology development, diffusion infrastructure
- Institutional/context: research and industrial infrastructure, policy as stabilising and destabilising element, ownership
- Individual: aspects of research and individuals engaged in the impact process

Our research questions

Overall goal: study how and under which circumstances impact of research happens – in a way that generates new insights and helps policymakers and research organisations to improve their impact-oriented activities

1. How can we identify research impacts, their magnitude and the processes that lead to them?
2. How can we characterise the absorptive capacity and processes of cogeneration, transfer, engagement, uptake and utilisation of knowledge through which investment in research lead to social and economic impacts over time?
3. How do impacts differ by field and sector of science and by area of application?
4. What is the role of policies and framework conditions for research impact and how can policy and framework conditions be designed to stimulate impact?

Our main work

1. Do different investigations among users of research to identify their competence, use and further implementation of research
2. Carry out 10-15 comprehensive case studies to identify important aspects of the impact process

Theory

- Impact is not a new topic
- Long traditions for looking at impact especially within agriculture and health, as well as the economics of R&D
- Major gap between quantitative and qualitative approaches
- We identify four different communities that have directly and indirectly studied impact

Economics of R&D

- Main emphasis: what is the return on investments in R&D in general and related to specific policy instruments?
- Focus on relatively few output indicators, primarily macroeconomic indicators and impact of research in firms
- Central topics related to additionality, public goods, spillover effects, appropriability etc.
- Close relationship to summative evaluations
- Dominating and contested with severe methodological issues

Example: Norwegian evaluation of policy instruments

- Focused on innovation and value creation effects
- Quantitative analysis with emphasis on measurement problems
- Main finding: the instruments have clear additionality effects; critical towards support for small firms



Research evaluation

- Main emphasis: how can science funding, instruments and organisations be designed in a way that increases the propensity for (desirable) impacts?
- Focus on different types of impacts (economic, policy, health, environment) for various stakeholders, and on process aspects such as interactions between researchers and users and the “context of application”
- Often used for formative evaluation, specific methods (ASIRPA, Payback, SIAMPI), more qualitative and action-based methods, e.g. PIPA (participatory impact pathway analysis)
- Interested in all types/fields of research and possible tensions between types of impact

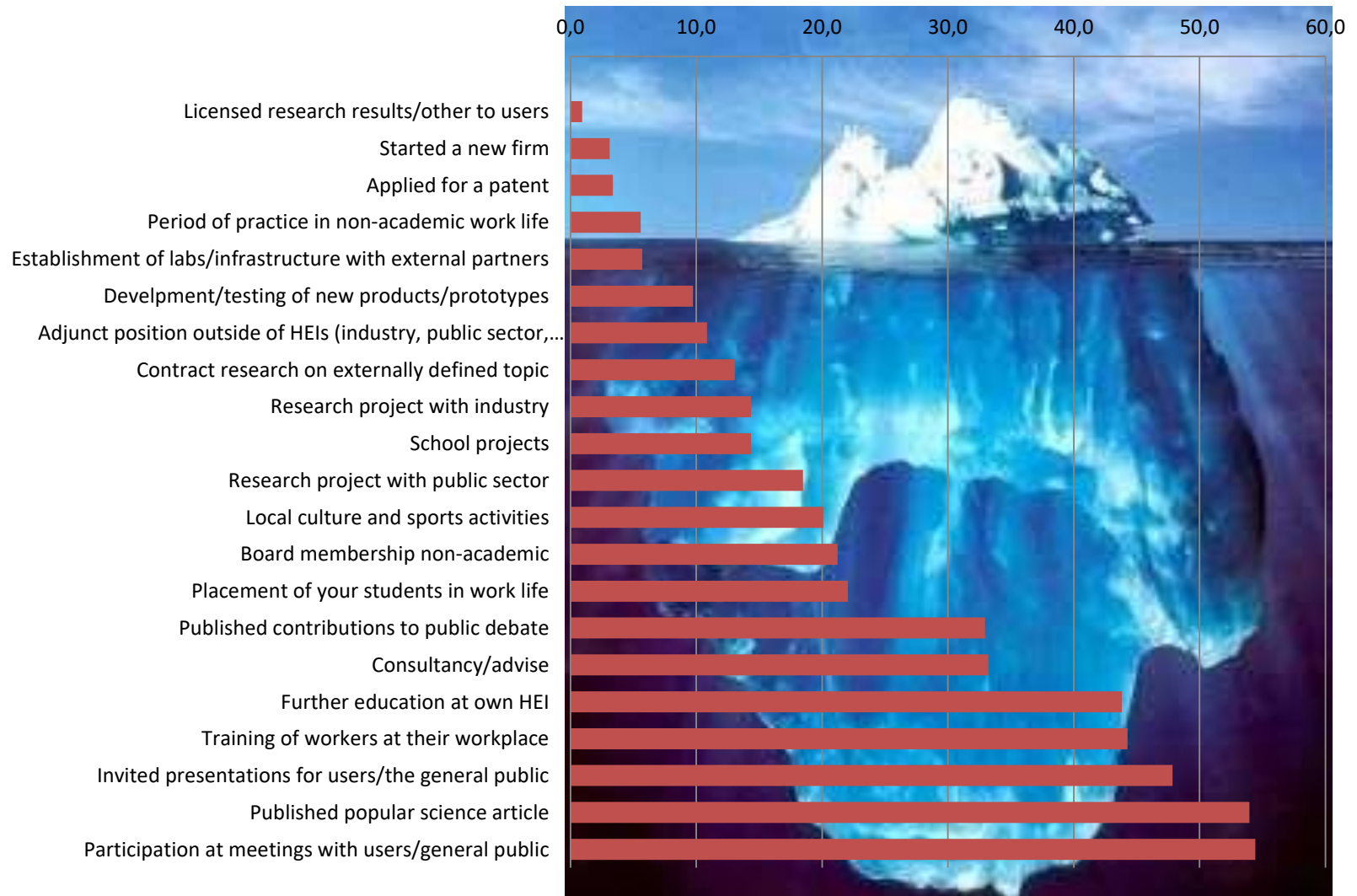
Example: recent Norwegian evaluation of social science institutes

- Combination of various elements
- Traditional survey to users of the institutes
- Impact case studies based on the UK Research Excellence Framework Template
- Emphasis on different types of impact and highlights various grand challenges (peace, social welfare etc.)
- The evaluation is ongoing, but case studies already used to argue for the legitimacy and usefulness of social science institutes

Academic engagement

- Main emphasis: how do researchers interact with and transfer knowledge to non-researchers?
- Focus on different channels/mechanisms of interaction
- Broadened perspective over time; from studies of commercialisation of STEM research to all forms of engagement for all types of researchers
- Academic starting point with no direct relationship to evaluations; studies often critique “simple” and “linear” policies
- Weakness that these studies mainly target researchers rather than users

Example from recent Norwegian engagement study

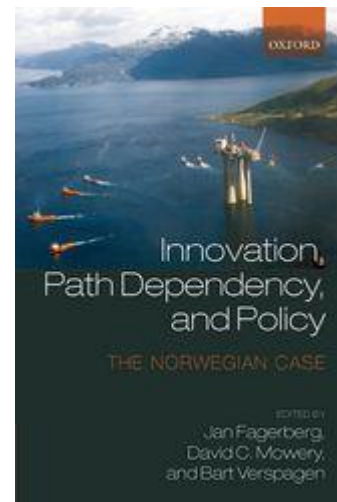


Evolutionary studies

- Main emphasis: how do new research-based technologies and artefacts emerge, develop and diffuse?
- Focus on long-term processes and the interaction between scientific, technological, social and other factors and contexts
- Involves many different specialties (STS, history of technology, evolutionary innovation studies)
- No direct relationship to evaluations (emerging?) and often with aim at contributing to broader understandings and theory-building

Example: study of the evolution of the Norwegian innovation system

- Highlights how modern high-tech industries like fish farming and oil and gas have long historical roots in low-tech technologies and industries
- Demonstrates the extremely long time perspectives involved in impact of research
- Can relate the discussion of impact to other concepts such as lock-in and path dependency



Our approach

- Develop new approaches combining aspects from the different communities
 - Looking at “impact trajectories” backwards and forwards using mixed methods
 - Studying preconditions for impact rather than indicators of impact
- Empirical investigations of impacts of public and private research within health, industry/innovation, policymaking
- We want to study the users as much as the researchers

Work packages and possible user partners

Conceptual work

WP1 Concept/method/policy

- Consensus on key definitions and approaches
- Development of new methods
- Monitoring and meta analysis
- Comparative perspectives and user contact

Empirical work

Main work

Research performing actors

- Include all types of research (HEIs, institutes, hospitals, industry, NGOs)
- Look at characteristics of the research and its artefacts, collaboration and training element

Main partner:
UiO

WP2 Health

- Stakeholder survey
- Absorptive capacity
- Evidence bases
- Impact case studies

Partners: HSØ, NAV, OUS etc.

WP3 Industry

- New surveys (CIS addition)
- Case studies

Partners: NFD, NHO, IN, NFR, firms etc.

WP4 Policy

- Analysis of public documents
- Survey
- Case studies

Partners: KD, RCN etc.

Vertical work packages 2-4

- Survey among users of research (firms, healthcare organisations, policymakers) about capacity, interaction, use of R&D etc.
- Studies of specific instruments which are intended to stimulate use of research (e.g. SkatteFUNN, organisations for evidence-based practices)
- Case studies identified together with users and based on a clear framework allowing for comparability and commensurability (case study workshop in February)
- Special work (text analysis of policy documents, macroeconomic modelling, register data etc.)

Role of user partners

- Suggestions for empirical work
- Help with data access
- Possible funding of PhD/postdoc
- Collaboration, meetings, value for partner

Activities

- “Open science” approach, sharing of info
- Open workshops and seminars
- Training and courses
- Active personal and digital dissemination

More information?

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Thank you for your attention!