Health Impact Assessment Fit for Energy Transition

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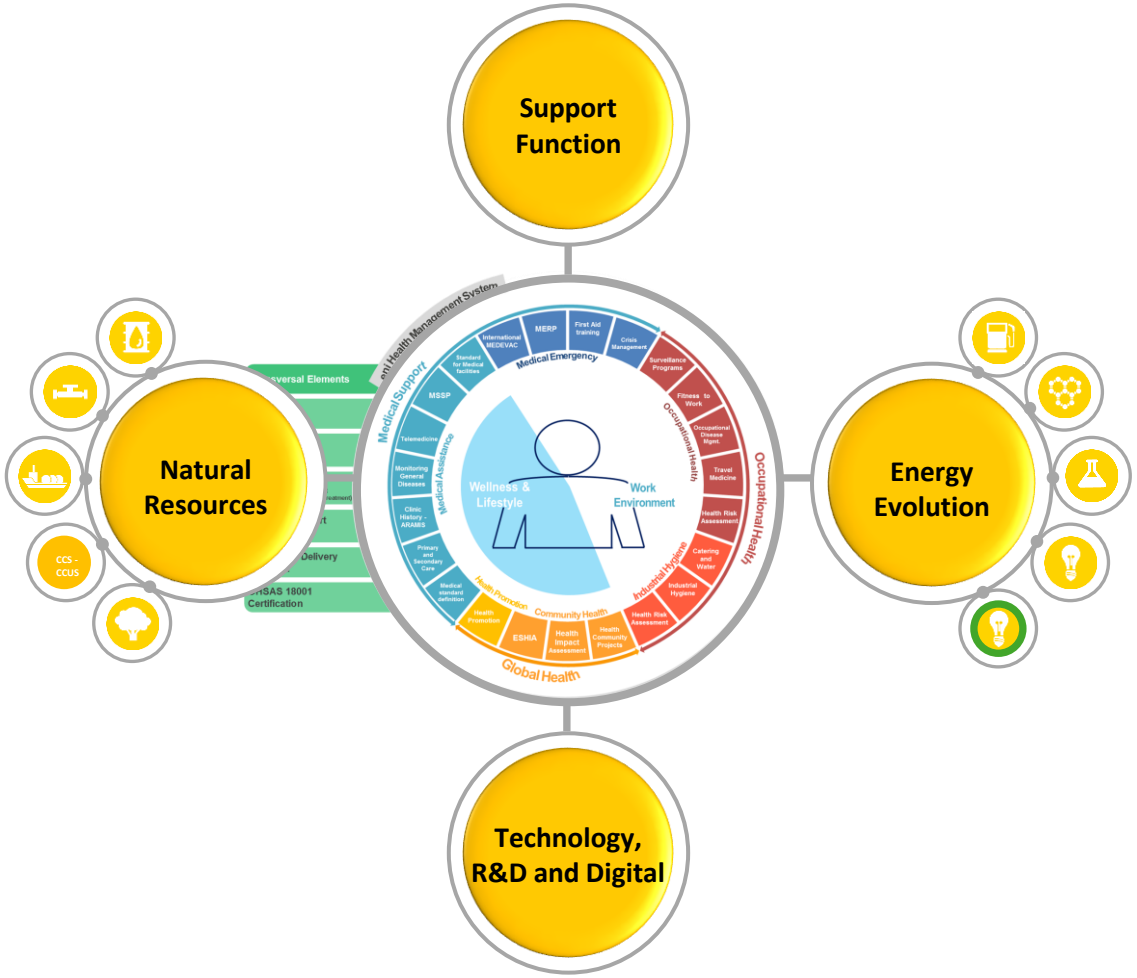
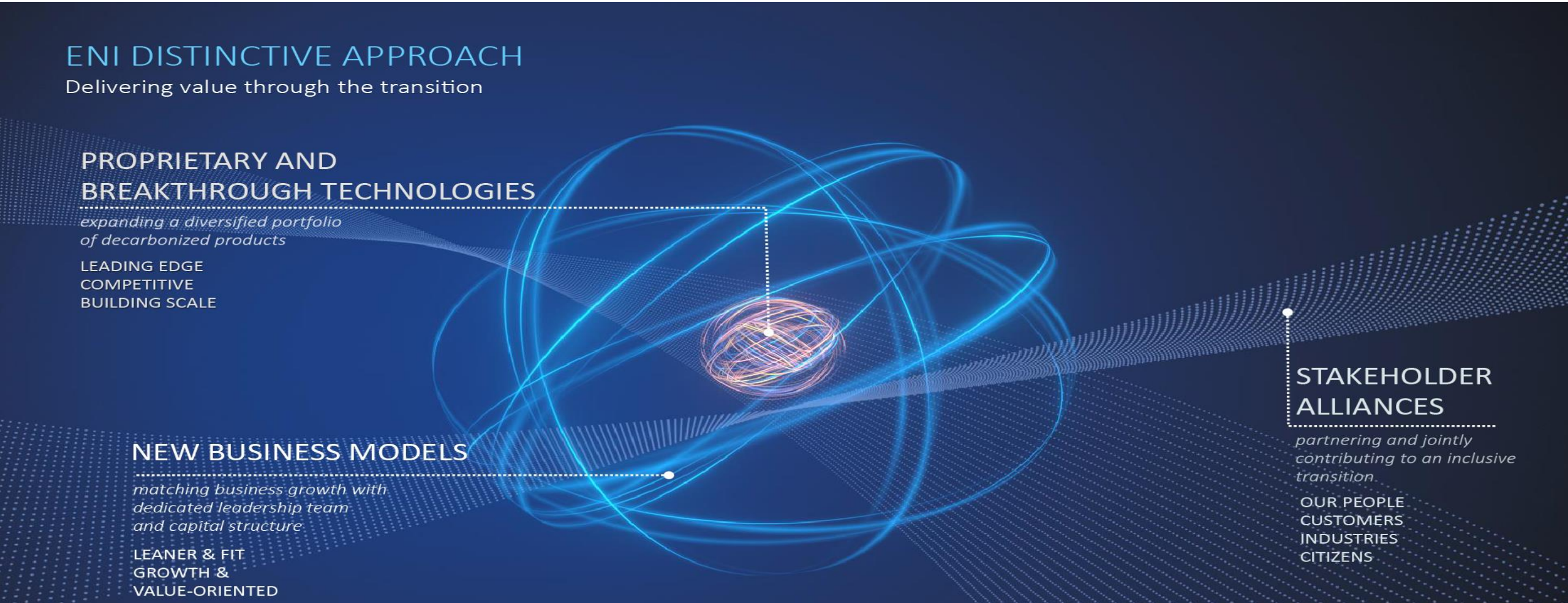
INTRODUCTION

- ***Eni**'s new **mission** was developed to better capture the company's goal of **promoting a just transition***
- *The Company's business model on energy transition requires significant changes in the organization. There are direct and in-direct implications to Eni's of managing health aspects in the projects*
- *In this new model, the **Health of workers, their families and communities remains at the heart of the business***
- ***Continuous research and innovative approaches** are essential for the good governance of the health system both for workers, their families and for the communities surrounding the Company's industrial activities*
- ***Eni's objective in advancing research on Energy Transition and Health is to ensure alignment and consistency with**:*
  - *Eni's mission and strategy*
  - *The SGDs*
  - *Eni's positioning in Health*
  - *Strengthening Eni's role as Global and lead player in the just and energy transition context*
  - *National and international regulation*



ENI AND ENERGY TRANSITION



Eni's **distinctive strategy** enables to address the challenges of the **current energy market** to **deliver secure** and **sustainable** energy to customers, creating value for out stakeholders, while **accelerating the** path to net-zero. Eni is pursuing these objectives by:

- ***leveraging our global upstream and partnerships*** *with producing countries, to find alternative and additional supply opportunities for Europe; and*
- ***accelerating our decarbonization targets****, working to offer progressively decarbonized services and products to our clients, in order to effectively tackle scope 3 emissions.*

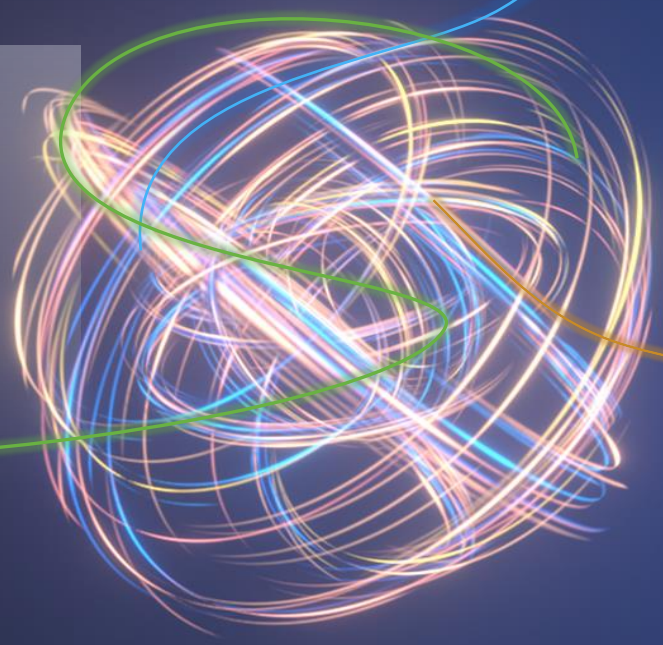
TECHNOLOGIES AND RISKS EVALUATION FOR ENERGY TRANSITION

PROPRIETARY AND BREAKTHROUGH TECHNOLOGIES

A portfolio of technologies to meet decarbonized energy needs

RENEWABLES & NEW ENERGIES

MAGNETIC FUSION
ENERGY STORAGE
WAVE ENERGY
on the path to clean and reliable energy



DECARBONIZED SOLUTIONS

CARBON CAPTURE
UTILIZATION & STORAGE
deploying safe, easy to apply and cost-effective solutions for CO2 capture, utilization and storage

CIRCULAR & BIO PRODUCTS

ADVANCED BIOFUELS
BIO-FEEDSTOCK
HYDROGEN
WASTE VALORIZATION
for a rapid transition to low-carbon mobility and circularity

1. Evolution of the Health System

- *Roles and responsibilities for wellbeing*
- *Human Capital Management*
- *New and emerging health technologies*
- *Health priorities of the current decade (2030)*
- *Pandemic preparedness, response and recovery*

2. Regulatory anticipation and risk of lack of consistency on positioning on emerging health issues

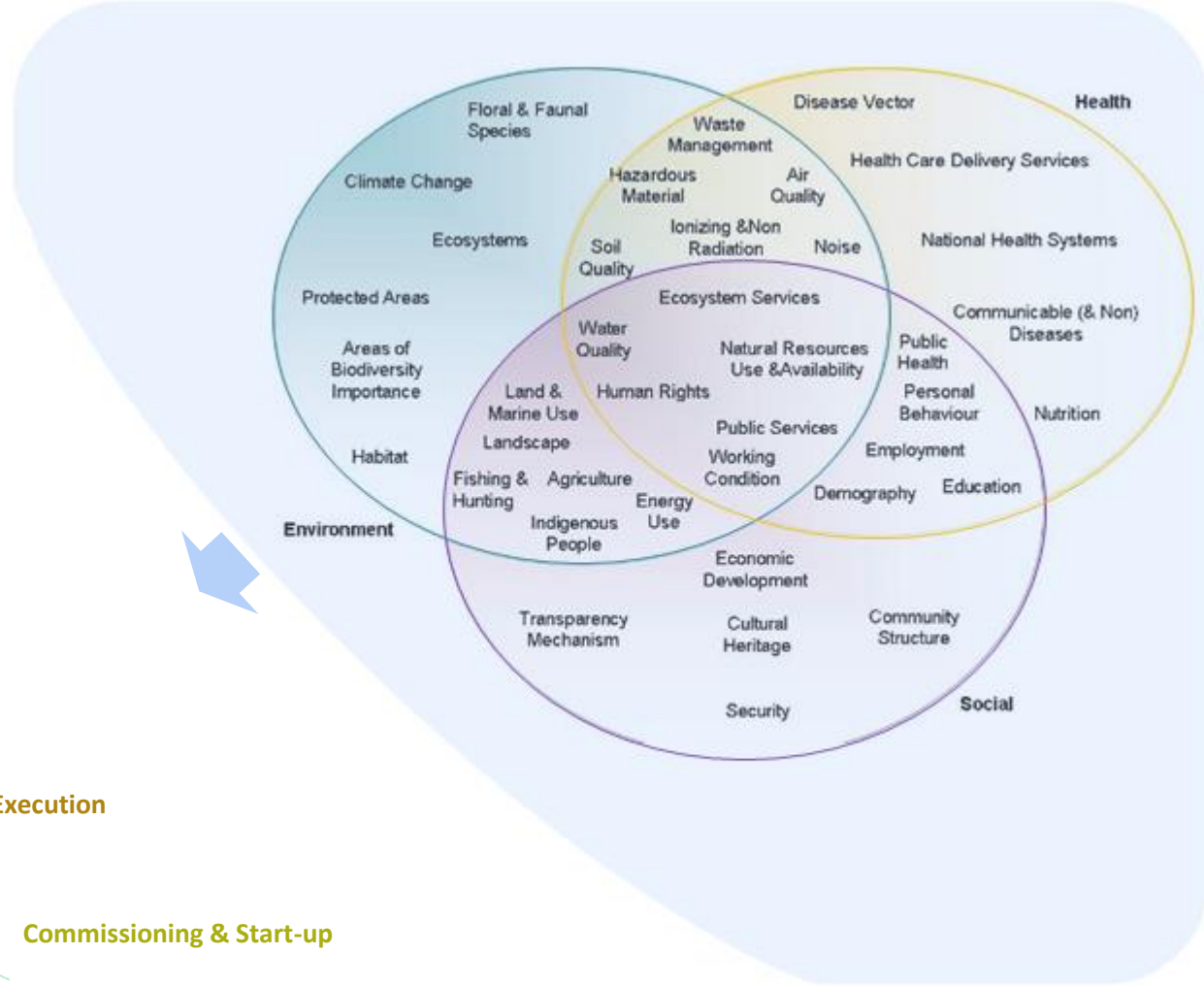
- *Direct Impacts of Climate*
- *Ecosystem-Mediated Impacts of Climate Change*
- *Other environmental stressors related to new energy*

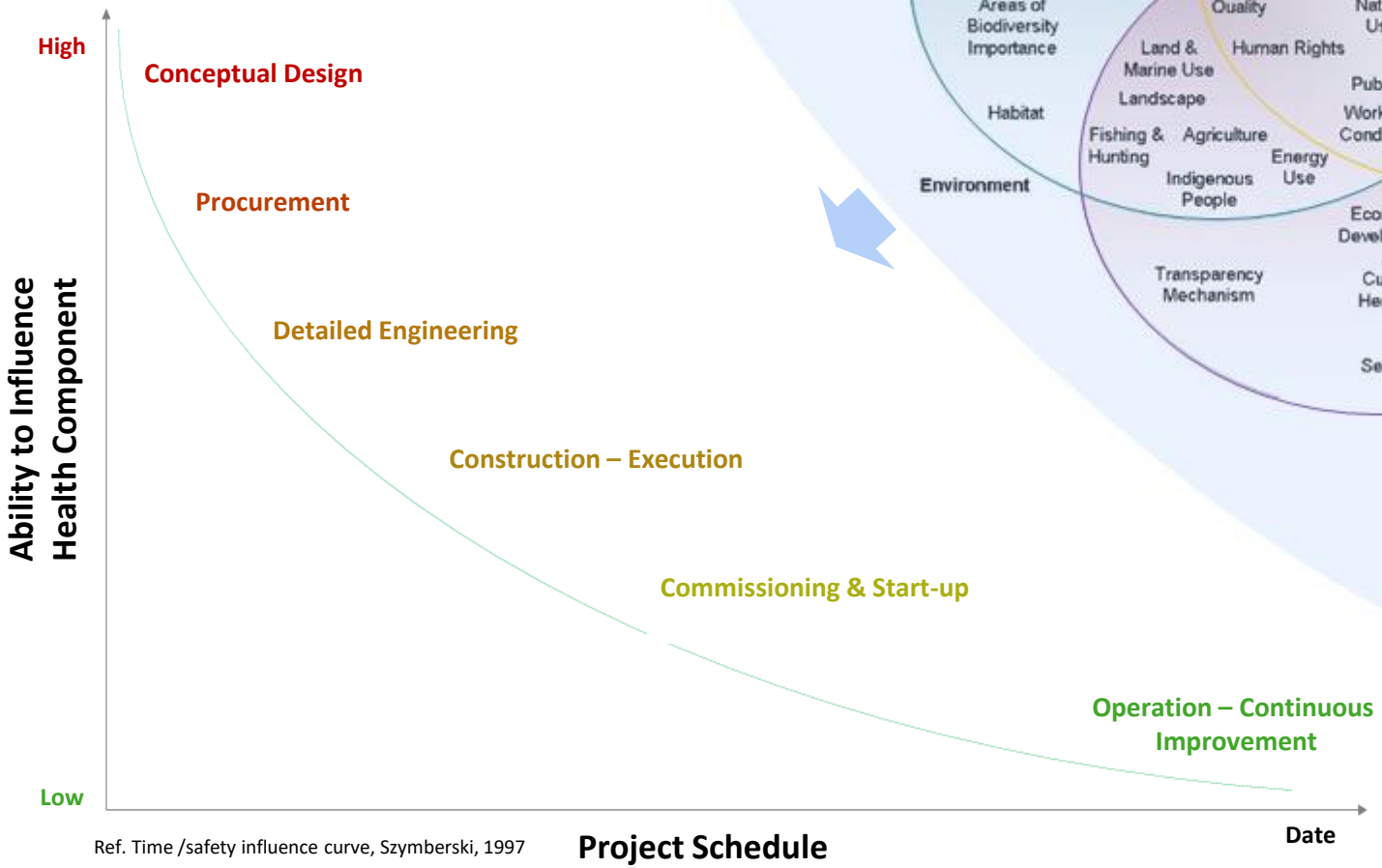
3. Increasing attention and requests for disclosure by stakeholders and shareholders

- *Sustainability*
- *Health co-benefits of climate change and energy policies*

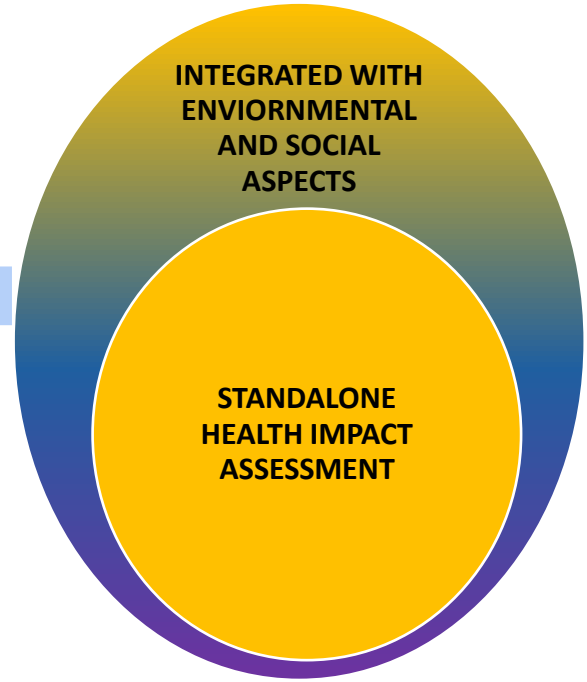
GLOBAL HEALTH MASTER PLAN FRAMEWORK

HEALTH IMPACT ASSESSMENT AND PROJECT MANAGEMENT





Ref. Time /safety influence curve, Szymberski, 1997



RELATIONSHIPS OF ENERGY TRANSITION AND HUMAN

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SCOPE

*Together With **International SOS** and **ERM**, **Eni**'s produced the «Relationships Of Energy Transition And Human Health As The Twenty-first Century Continues" report to:*

- *Provide A High-level Mapping Of The Risk And Opportunities Associated With The Energy Transition*
- *Describe The Related Possible **Green And Red Flags***
- *To Identify Priorities To Be Investigated*
- ***Drive Scientific Research***
- ***Directs Eni's Operations***

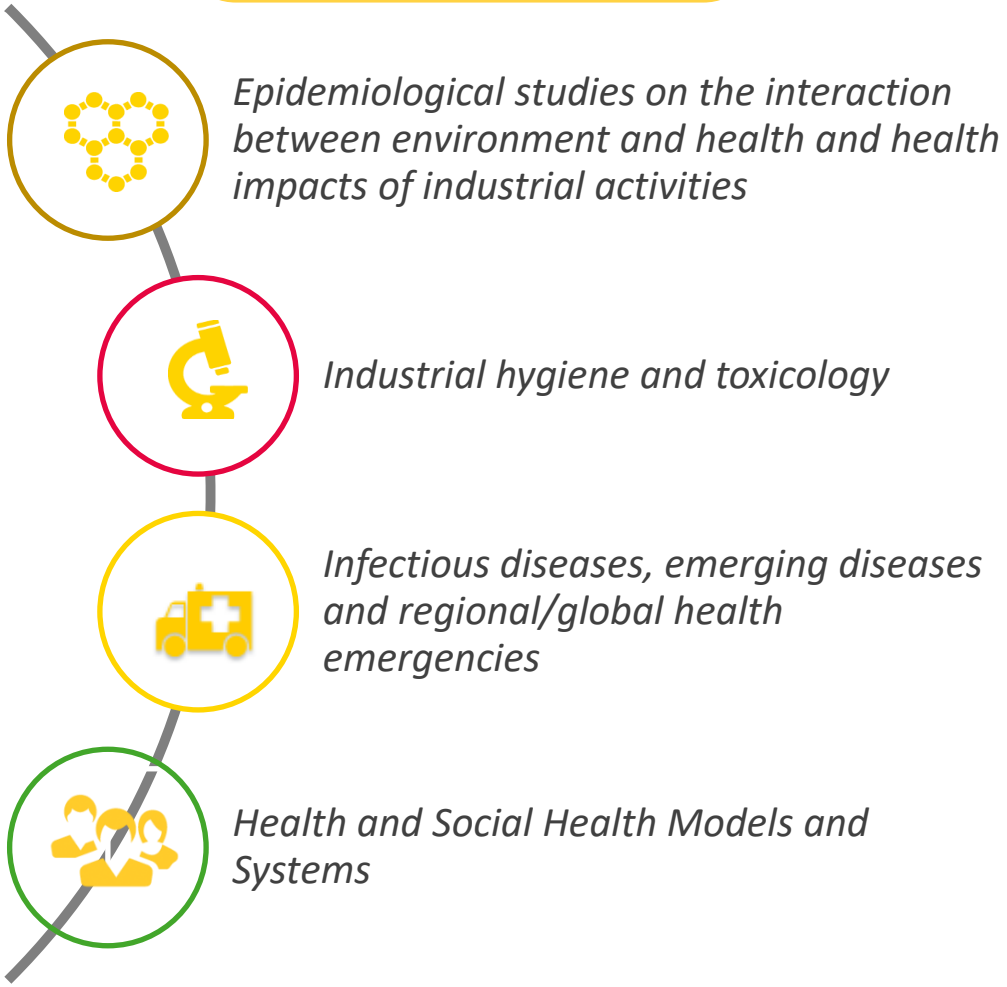
Relationships of energy transition and human health as the twenty-first century continues

METHODOLOGY

- *The review focused on assessing two main area:*
  - ***Energy evolution technologies***
  - ***Trends in healthcare***
- *Following this methodology:*
  - *Screening and scoping*
  - *Evaluation*
  - *Priorities definition*

PRIORITY AREAS AND ASSOCIATED ACTIONS

PRIORITY AREAS



Epidemiological studies on the interaction between environment and health and health impacts of industrial activities

Industrial hygiene and toxicology

Infectious diseases, emerging diseases and regional/global health emergencies

Health and Social Health Models and Systems

ACTIONS

- ***Establishment of a scientific independent research committee*** *to analyze and evaluate the priority areas identified. This research activity will* ***guide Eni's work in terms of planning and development***
- ***Producing and disseminating scientific works***
- ***Monitoring of the major international trends*** *on issues relating to the Environment, Energy and Global Health*
- *Participation in national and international round tables on these issues,* ***contributing with the evidence resulting from the research and analysis activities undertaken***

AREA 1 - HEALTH RISKS AND IMPACTS OF ENERGY TRANSITION TECHNOLOGIES

OBJECTIVES

To perform a systematic review on health effects of novel energy production technologies based on eni strategy

PRELIMINARY CONCLUSIONS

- *With the exception of wind power, studies on health effects are very limited or absent*
  - *For wind power, most studies are of low quality and evidence is inconclusive*
- *LCA studies are available for most technologies*
  - *They tend to support the hypothesis of a contribution to health effects*
  - *Studies likely overestimate the risk because of uncertainties in exposure scenarios*
- *Data on use of biofuel for energy production are poor*

METHODOLOGY

RESEARCH TOPICS

- *Associations between emission from life cycle and operation on health effects*
- *Biofuel, Green Hydrogen, Carbon Capture and Storage (CCS), Concentrated Solar Power (CSP), Magnetic Fusion, Wind Power, Sea Wave Energy Converter (SWEC)*

DATABASES

- *Pubmed, Embase, Cochrane Library, Web of Science, Scopus, Reaxys - **42 in total***

RESEARCH QUERY

- *Research queries formulated with the support of librarians - **221 queries in total***

LITERATURE SCREENING

- *Identification and selection of scientific articles: title and abstract; full-text – **134 relevant articles in total***
- *Inclusion of reports outside peer-reviewed literature*

DATA ABSTRACTION

- *Abstraction of results section using standard tools*
- *Preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines*

AREA 2 - INDUSTRIAL HYGIENE AND TOXICOLOGY IN BIOREFINERIES

OBJECTIVES

The main objective is to develop a roadmap to assess and quantify potential health effects of biofuel industry

BACKGROUND

- *Review of existing studies on health effects of biofuel for energy production showed very limited LCA and emission/exposure studies*
- *No relevant studies of health effects from either residential or occupational exposure*

RECOMMENDATIONS FOR FUTURE RESEARCH

- *LCA study comparing biofuel with traditional fuels*
- *Comprehensive assessment of exposure levels (residential and occupational) from operating plant*
- *Ad-Hoc model-based studies of potential health effects based on exposure estimates*

AREA 3: INFECTIOUS DISEASES, EMERGING DISEASES AND HEALTH EMERGENCIES

SCOPE AND METHODOLOGY

- *Collect and review the data available on the current literature regarding pandemic emergency response models, in order to size and detail companies' contribution, taking into account the scientific evidence and the major trends at the level international and multidisciplinary approaches such as one health*
- *Review of current scientific literature and gray literature*
- *Propose recommendations for actions*

CONCLUSIONS

- *A common commitment in which large private actors can act to govern complexity and guarantee the health of the planet must be the starting point for joint projects, which, in accordance with international organizations and the international health regulations, can give impetus to economic growth and sustainable globally*
- *The alliance between all the key players in the governance and leadership systems of the various production sectors is fundamental*

RECOMMENDATIONS

- *Strengthening the preparedness systems and drawing up emergency preparation plans from a one health perspective*
- *Strengthening of horizon scanning systems for a close monitoring of epidemiological emergencies, in collaborations with institutions at all level and public health agencies*
- *Use and provision of all technologies and digital platforms useful during emergency situations*
- *Construction of public private partnerships*
- *Implementation of evidence-based communication systems to keep citizens / workers informed and updated on prevention and health promotion*
- *Development of company-level leadership systems that provide support decision-making levels based on existing scientific evidence*
- *Willingness to build health surveillance models in collaboration with the NHS, the SSR and national and local institutions*

AREA 4: HEALTH AND SOCIAL HEALTH MODELS AND SYSTEMS

RESEARCH OBJECTIVE

Define a new conceptual and operational model of synergy between the corporate health system and the NHS that considers the following elements:

- *The integration between General Practitioner (GP) and company competent physician*
- *Occupational medicine and company's health welfare programs*
- *The contribution of digital and information technologies*

MAIN ACTIVITIES

- *Review of the literature on welfare models*
- *Analysis of the weight of private consumption in the healthcare sector in Italy*
- *Definition of the key transformational drivers (aging population, new available services thanks to scientific progress, prevention centrality, community focus)*
- *Framing of Eni's corporate health-welfare model with respect to existing configurations*

FUTURE ACTIONS

- *Unify management models to unify commissioning and delivery models*
- *Need to activate user verification and feedback processes*
- *Enhancement of interdependencies with the public entity*
- *Multiplier of NHS prevention*
- *Access to services extra NHS*
- *Sharing of information*
- *Integration or support on social health services*

WAY FORWARD

- *Definition of the following years scope for the research based on the first year committee's recommendations*
- *Continue assessing the global and international trends in terms of global health and wellbeing*
- *Continue the dialogue and common efforts with the various stakeholders and international organisations such as WHO and WBCSD*
- *Set a foundation for common work with IOGP – IPIECA by launching specific task force*
- *Continue improving the control of risks and impacts on health and maximize opportunities using the outcome of the research as well as reinforce it through HIA-ESHIA as fundamental tool to prevent the business impact on human health*

Let’s continue the conversation!

Post questions and comments via chat in the IAIA22 platform.

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