A poster with text and images

Description automatically generated with medium confidence

Open Science is an evolving and multifaceted concept that aims to make scientific knowledge more accessible, transparent, reproducible, and inclusive to benefit society and the scientific community. As a League of European Research Universities (LERU) member, the University of Copenhagen adheres to the eight pillars of Open Science set forth by LERU, providing a comprehensive framework for institutions and researchers to adopt open practices.

In addition to LERU's perspective, other organizations such as FOSTER (Facilitate Open Science Training for European Research) and UNESCO have also contributed to the understanding and promotion of Open Science. FOSTER defines Open Science as an umbrella term encompassing "the opening up of the research cycle, increasing transparency, and sharing at each stage." This includes open access to publications, open research data, open-source software, open collaboration, peer review, educational resources, and citizen science.

On the other hand, UNESCO defines Open Science as "the movement to make scientific research and data accessible to all." This includes free access to research articles, data, and resources, fostering global collaboration and sharing knowledge. UNESCO aims to create a common international understanding of Open Science and promote its adoption across nations and disciplines.

Integrating the perspectives of LERU, FOSTER, and UNESCO, Open Science can be understood as a comprehensive approach to scientific research that promotes accessibility, transparency, inclusivity, and reproducibility at all research cycle stages. The University of Copenhagen, as a member of LERU, follows the eight pillars of Open Science as a framework for implementing open practices while also considering the broader definitions and principles put forth by FOSTER and UNESCO. By embracing Open Science, the University of Copenhagen and other institutions worldwide can enhance collaboration, public engagement, and the societal impact of scientific research.

The League of European Research Universities (LERU) has identified eight pillars of Open Science that are crucial for its successful implementation. These pillars are:

1. **FAIR Data**
2. **Research Integrity**
3. **Next Generation Metrics**
4. **Future of Scholarly Communication**
5. **Citizen Science**
6. **Education and Skills**
7. **Rewards and Incentives**
8. **European Open Science Cloud (EOSC)**

**FAIR Data:**

FAIR data stands for data that is Findable, Accessible, Interoperable, and Reusable. This principle ensures that scientific data is appropriately managed, stored, and shared to maximize its potential for discovery and reuse. This requires the development and adoption of common standards, metadata, and identifiers that facilitate data discovery and access while promoting collaboration and reducing duplication of effort.

**Research Integrity:**

Research integrity refers to the adherence to the highest ethical and professional standards in scientific research. This includes transparency, reproducibility, accountability throughout the research process, and the responsible handling of conflicts of interest and research misconduct. Institutions should establish codes of conduct, training programs, and procedures to promote research integrity and address potential issues.

**Next Generation Metrics:**

Traditional research assessment metrics, such as the Journal Impact Factor, have limitations and can lead to biases in evaluating research outputs. Next-generation metrics focus on alternative, more comprehensive methods to assess the quality and impact of research, considering factors like societal impact, data sharing, and collaboration. These metrics aim to provide a more balanced and nuanced understanding of research performance, encouraging researchers to engage in open and collaborative practices.

**Future of Scholarly Communication:**

The future of scholarly communication refers to the transformation of how research findings are disseminated, reviewed, and archived. This includes embracing open-access publishing models, promoting preprint servers, and developing innovative peer-review systems. The goal is to make research outputs more widely available, transparent, and accessible, fostering collaboration and accelerating the advancement of knowledge.

**Citizen Science:**

Citizen science is the active involvement of the general public in scientific research, typically through data collection, analysis, or problem-solving. This approach increases public engagement, fosters scientific literacy, and helps to address complex research questions by leveraging the power of large-scale participation. Institutions should provide support, resources, and training to enable citizen science projects and maximize their potential impact.

**Education and Skills:**

Open Science requires a shift in the skill sets of researchers, educators, and support staff. This includes developing expertise in data management, open-access publishing, research integrity, and collaboration. Institutions should provide training and support to equip researchers and staff with the necessary skills to engage in Open Science practices and integrate these principles into curricula for future scientists.

**Rewards and Incentives:**

To promote Open Science, it is essential to create rewards and incentives that recognize and support researchers who engage in open practices. This may involve revising promotion and tenure criteria, incorporating open science achievements into grant applications and evaluations, and recognizing non-traditional research outputs like data sets, software, and public engagement.

**European Open Science Cloud (EOSC):**

The EOSC is a European initiative to provide a virtual environment where researchers can store, manage, analyze, and share research data across disciplines and borders. By offering a shared infrastructure, resources, and services, the EOSC aims to facilitate interdisciplinary collaboration, data reuse, and the development of new data-driven research methods. Institutions should actively participate in the EOSC, contribute to its governance, and promote its use among their researchers.

In conclusion, reNEW Copenhagen is fully committed to embracing the principles of open science in our quest to revolutionize medical research and treatment through stem cell-driven therapies. We recognize the immense potential of open science in fostering collaboration, enhancing transparency, and accelerating scientific progress. As we work towards establishing an internationally targeted research center, we are dedicated to leveraging these principles for the greater good.

Our mission at reNEW Copenhagen is to transform the lives of those suffering from incurable diseases by delivering innovative, cutting-edge stem cell therapies. By championing open science, we aim to expedite our research and ensure the highest scientific integrity and rigor standards. This approach will enable us to pool global expertise and resources, thus creating a collaborative and inclusive research environment where breakthroughs can be achieved more rapidly.

As we pursue our vision, we remain aware of the challenges that may arise in open science, such as data privacy, intellectual property, and the need for a sustainable funding model. Nevertheless, the benefits of open science far outweigh these challenges, and we are committed to addressing them responsibly and proactively.

Incorporating open science into our research center's ethos will not only facilitate the generation of groundbreaking stem cell therapies but also contribute to the democratization of knowledge and the promotion of equitable access to scientific advancements. By fostering a culture of openness, collaboration, and transparency, reNEW Copenhagen aspires to redefine the traditional paradigms of scientific research and become a global leader in stem cell-driven therapeutic innovations. Ultimately, our unwavering dedication to open science will serve as a cornerstone in our pursuit to transform the lives of millions suffering from incurable diseases, making a tangible and lasting impact on global health.