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Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

NORWEGIAN MINISTRY OF FOREIGN AFFAIRS

THE ABS CAPACITY DEVELOPMENT INITIATIVE
L'INITIATIVE DE RENFORCEMENT DES CAPACITES POUR L'APA

Information Session: 1st Global Dialogue on DSI

Elizabeth Karger, ABS Capacity Development Initiative

Second meeting of the Open-Ended Working Group on the Post-2020 Global Biodiversity Framework

Rome, Italy, 25 February 2020

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Confederaziun svizra

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Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Economic Affairs SECO

Institut de la Francophonie pour le Développement Durable IFDD

and implemented by

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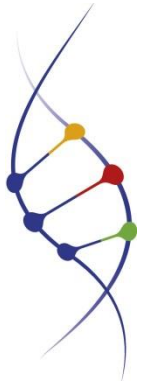
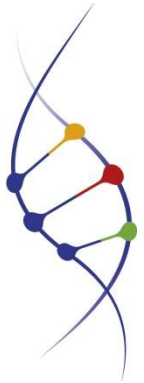
Overview



- Background on issue
- 1st Global Dialogue on DSI in Pretoria
- Next steps

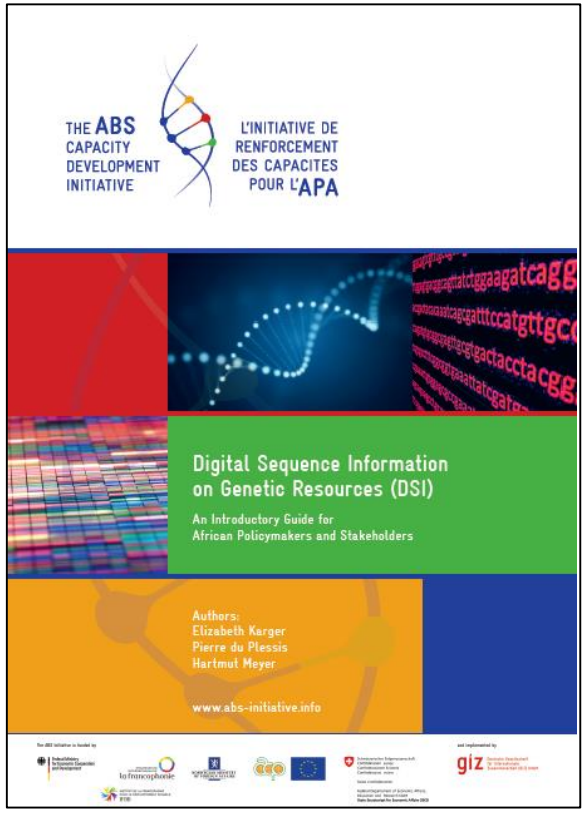
Point of Departure



- COP13 in 2016, Mexico
  - definition?
  - use of DSI has negative impact on the third objective of the CBD and the objective of the Nagoya Protocol?
  - benefit-sharing obligations?
- Intersessional period 2017-2018
- COP14 in 2018, Egypt – decision on science and policy process
- Intersessional period 2019-2020

Supporting the Science-Policy Process

Introductory Guide for African Policymakers and Stakeholders



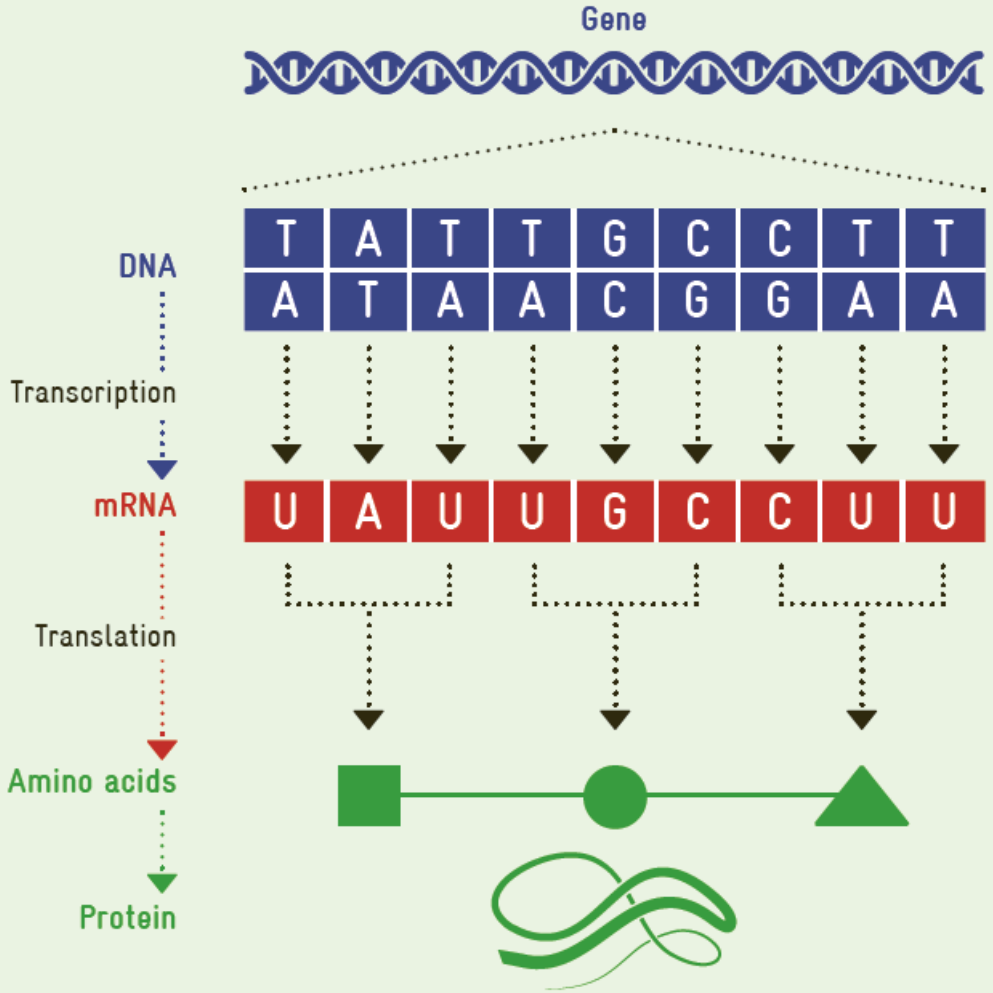
- Available in English and French

- **PART 1: DSI – WHAT'S THE ISSUE?**
  - **Sequencing technology, biological research and biotechnology**
  - **Diverging positions and interests**

- **PART 2: THE INTERNATIONAL PROCESS**
  - **DSI in the CBD and other fora**
  - **The science policy process**
  - **ABS, the post 2020 framework & the SDGs**

- **PART 3: WHAT IS DSI AND HOW IS IT USED?**
  - **DSI & biochemical molecules**
  - **Generation of DSI**
  - **Examples of DSI use**

What is DSI?



A gene is a section of a large molecule called DNA.

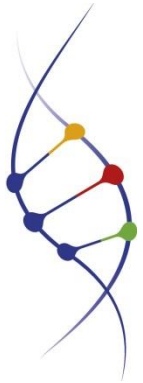
The nucleic acid sequence in the gene holds the information needed to produce a protein.

First the nucleic acid sequence is transcribed into another type of molecule called messenger RNA (mRNA).

The nucleic acid sequence of the mRNA molecule is translated into amino acids.

Amino acids are joined together to form a protein, which folds into a particular shape depending on the sequence of amino acids.

What is DSI?



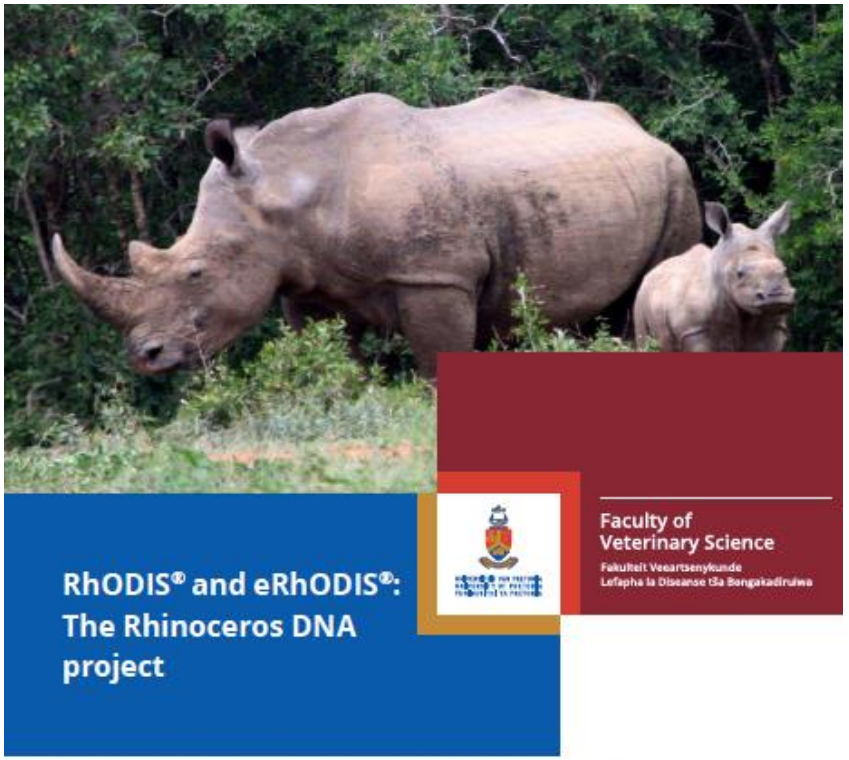
- No internationally agreed definition
- Emerged from discussions on synthetic biology
- Concept and scope are not clear
- More appropriate terminology is needed – placeholder
- Other terms in other fora (i.e. genetic sequence data)

Use of DSI and conservation of biodiversity

Rhinoceros DNA database successful in aiding poaching prosecutions

Statistical study shows how powerful RhODIS database is in linking forensic evidence to particular animals, say researchers

▲ In 2016 poachers killed more than 1,050 rhinos in South Africa alone. Photograph: Chris Minihane/Getty Images



In 2006 the Veterinary Genetics Laboratory (VGL) at the Faculty of Veterinary Science identified a need to develop expertise in animal forensic testing and in 2009 the project provided a validated method to obtain an individual DNA profile from any part of the rhinoceros horn in order to link it to the animal that it was taken from. A ground-breaking programmewas developed called RhODIS® to collect and catalogue DNA from rhinos and rhino horns. This serves to develop and provide the following:

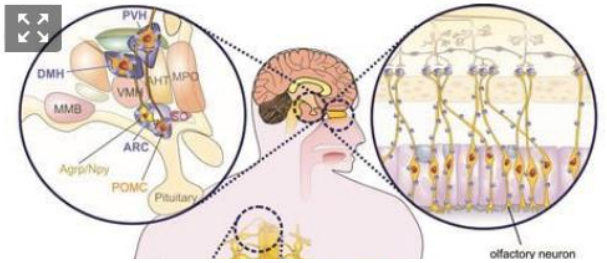
Commercial use of DSI

Snail venom compound 'offers chronic pain therapy'

21 February 2017 | Share

The Conus regius sea snail kills its prey using venom, which also contains a compound that can trea

Venom from a small snail could be used to develop a treatment for chronic pain, scientists from the US suggest.



TheScientist
EXPLORING LIFE, INSPIRING INNOVATION

NEWS & OPINION MAGAZINE SUB

Home / Archive / January 2018 / Features

Animal Analgesics

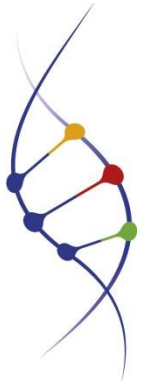
A cornucopia of toxins in the animal kingdom could provide inspiration for novel painkillers, but so far, effective drugs have proven elusive.

Jan 1, 2018
THE SCIENTIST STAFF

CENTIPEDE: EIVIND UNDHEIM; SHELL: DENIS FINNIN, AMERICAN MUSEUM OF NATURAL HISTORY; SEA ANEMONE: TAM WARNER

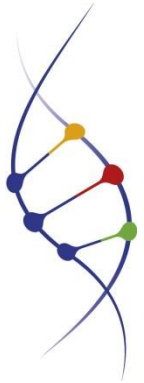
Using this approach, ProTx-II, from the venom of the Peruvian green velvet tarantula, was identified as a selective inhibitor of the $Na_v1.7$. It is one of the most potent $Na_v1.7$ blockers found so far and demonstrates more than 80-fold selectivity over other sodium channel subtypes tested.[5] But it isn't perfect. 'The problem with ProTX-II is it's like a piece of grease,' says King 'it's really hydrophobic and sticks to everything and takes a long time to get into the channel and is a slow binder.'

Databases



- Petabytes of data - DNA, RNA, proteins
- Public databases – hundreds
- International Nucleotide Sequence Database Collaboration (INSDC)
  - National Center for Biotechnology Information (GenBank)
  - European Bioinformatics Institute (EMBL-EBI)
  - DNA Database of Japan (DDBJ)
- Interlinkages between public databases

Data/Information management

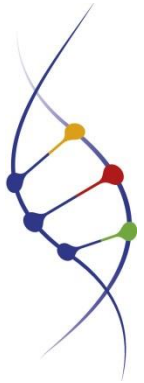


- Spectrum – raw data, curated data, metadata, annotations, publications etc.

- Use
  - millions of users worldwide
  - scientific community – major contributor and user
  - commercial users

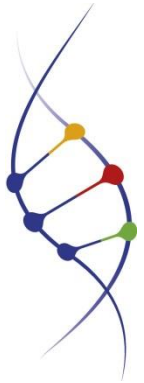
- Private databases?

Stakeholders



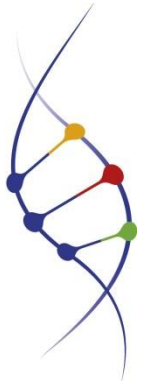
- Parties and other Governments
- Research community
- Database operators
- Industry actors
- Civil society organizations
- Indigenous peoples and local communities

DSI in other UN fora



- UNCLOS - Biodiversity Beyond National Jurisdiction
  - Terms; use of marine genetic resources
- FAO – Commission on Genetic Resources for Food and Agriculture
  - Studies - understanding DSI use in different sectors
- FAO – International Treaty on Plant Genetic Resources for Food and Agriculture
  - Study on synthetic biology
  - Terminology; Multilateral System and SMTA

DSI in other UN fora



- WHO
  - Outreach on Nagoya Protocol – understanding pathogen-sharing practices and health implications
  - PIP Framework

- WIPO
  - IPR implications – patents, copyright etc.
  - Standards

DSI in the CBD context

Science-Policy Process on DSI

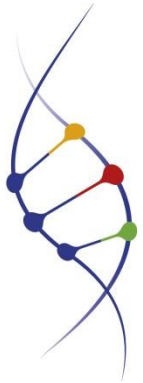
- Aim: develop **recommendations** for COP 15 on how to address DSI in the context of the Post-2020 framework

- DSI AHTEG 2 and OEWG 3 – **too little time**

- Financed by **Norway in cooperation with South Africa**; German Federal Ministry for Economic Cooperation and Development (BMZ) commissioned the ABS Initiative with implementation

- **Informal space** for exchange of information: common understanding of issues, trust building, capacity development

1st Global DSI Dialogue



Who?

- 65 participants from 27 countries

- Who was invited?
  - Governments from all UN regions (regional representation, focus on those active in the discussion)
  - Experts
  - Other stakeholders
  - International organizations

- Chatham House Rule – no attribution!

1st Global DSI Dialogue

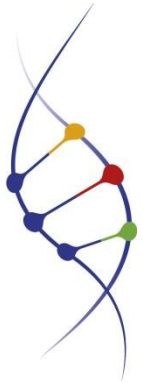
What?

- Technical input (what is DSI, use of DSI, databases)

- Updates on processes in other UN Fora (WHO, CGRFA, ITPGRFA, WIPO, UNCLOS)

- Discussions:
  - concerns, needs, wishes, fears
  - existing approaches for dealing with DSI (e.g. regulation, IPR, databases)
  - options for moving forward and what needs to happen to make it possible

1st Global DSI Dialogue



Outputs

- Constructive discussion!!

- Report
  - is available in all UN languages: http://www.abs-initiative.info/topics/dsi/
  - Inf. doc at OEWG2

- Options for the CBD
  - **5 models** for benefit-sharing based on commercial use, open access maintained (spectrum bilateral-multilateral)
  - **Checklists** for the evaluation of options – points to consider

1st Global DSI Dialogue

Checklist

Deliverables	*Governance aspects*
• Alignment of incentives regarding CBD objectives • Contribution to fight biodiversity loss • Win-win-win gains (providers – users – environment) • Global initiative delivering global benefits • Potential to generate benefits • Ability to quantify benefits (monetary / non-monetary) • Ability to minimize biopiracy • Enhance the ability to meet the SDGs	• Enforceability • Voluntary or compulsory • Fairness and equity • Recognition of/link to provider of the (initial) genetic resource • Legal certainty / predictability • Ability to monitor • Ability to build trust among partners/stakeholders • Inclusiveness and recognition of the priorities of all stakeholders • Transparency on storage and use of DSI • Transparency in decision-making, distribution of funds etc.

1st Global DSI Dialogue

Checklist - continued

Operational Aspects	*Economic Aspects*
• Feasible / doable / can be implemented • Simplicity of the system • Low level of complexity • Effectiveness • Flexibility / Adaptability • Workable for different types of users • Future proof (takes into account technological development) • Ability to be implemented timely/quickly • Not reinventing the wheel (i.e. not replicating existing systems but rather building on them) • Compatibility with other/existing systems* legal frameworks, databases, funds, etc.	• Cost of setting up and maintaining the system • Transaction costs • Economics of information i.e. information spreads easily and is hard to control; asymmetry of information • Incentives/ Incentives to participate

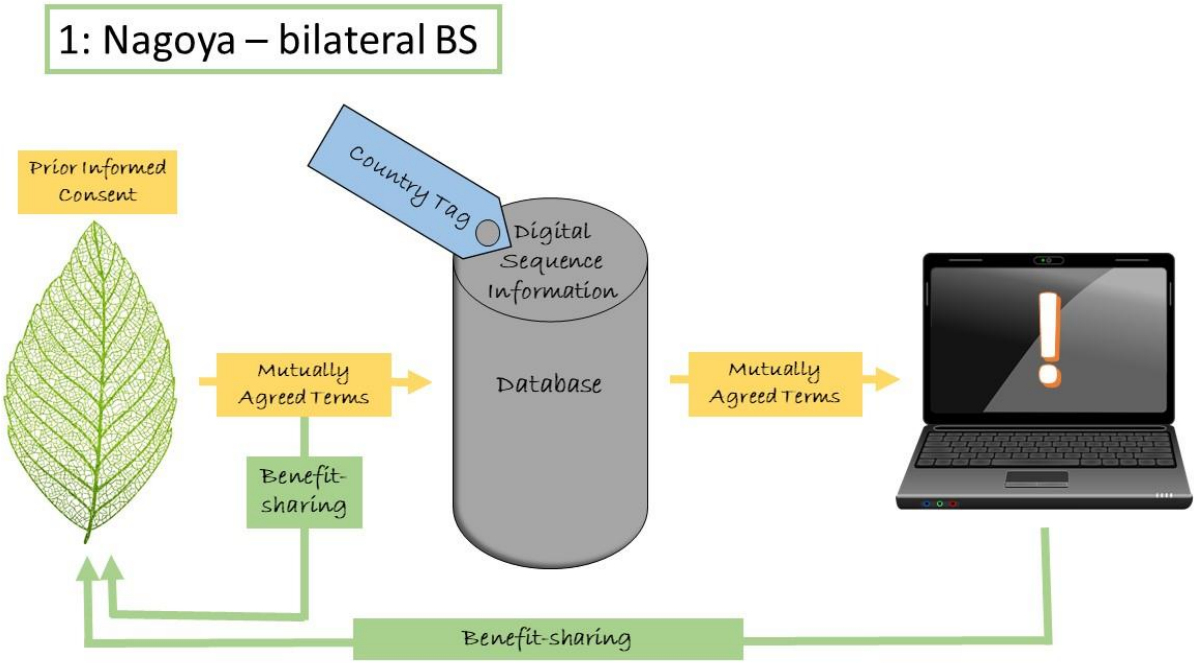
1st Global DSI Dialogue

Checklist - continued

Potential impacts	***Capacity***
• Consequences for everyone (stakeholders affected directly/indirectly) • Impact on R&D • Not disruptive to open access • No impediments to research • No barriers to attaining the SDGs (DSI technology is applied in many SDG relevant sectors)	• Capacity development for the use of DSI (level playing field) • Ability to use DSI globally
	Other Aspects
	• Realistic expectations • Consideration of the environmental footprint • Ease of access to justice*

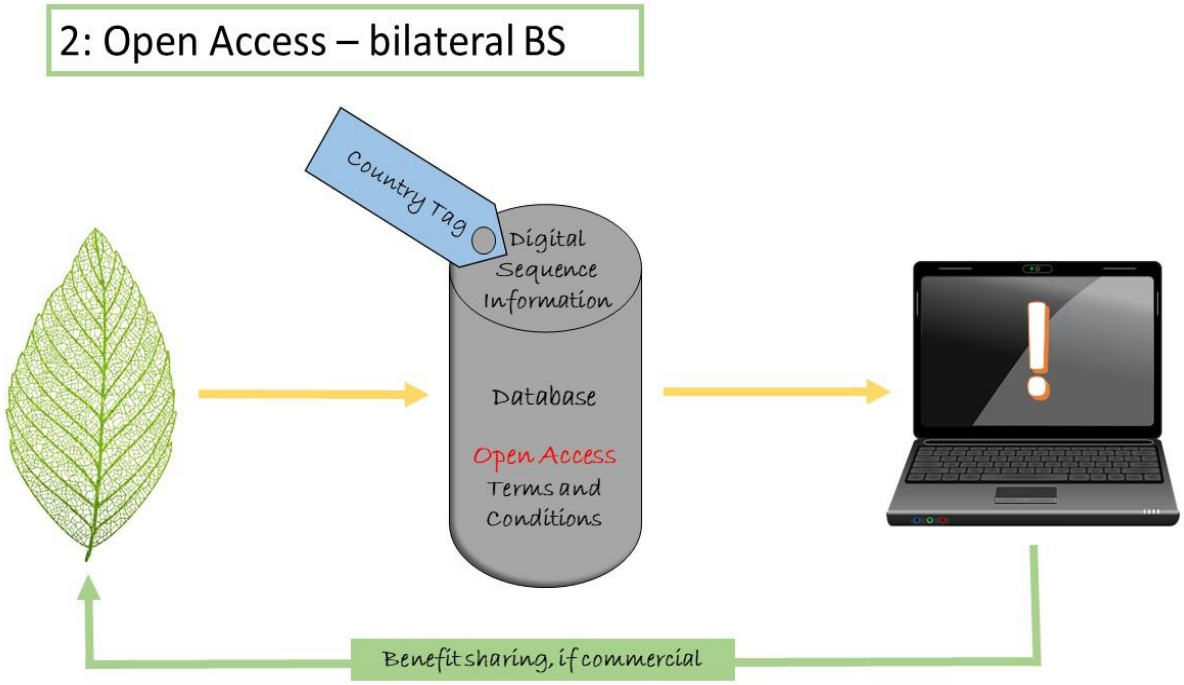
1st Global DSI Dialogue

Model - Option 1



1st Global DSI Dialogue

Model - Option 2



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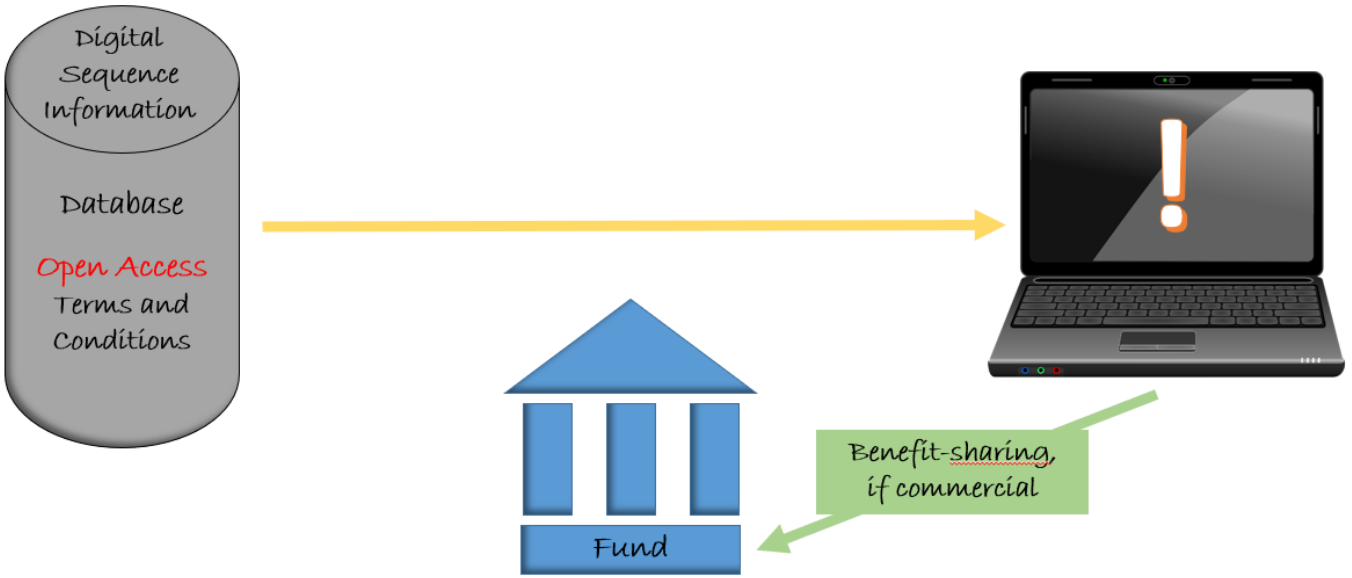
Model - Option 3

3: Open Access – multilateral BS



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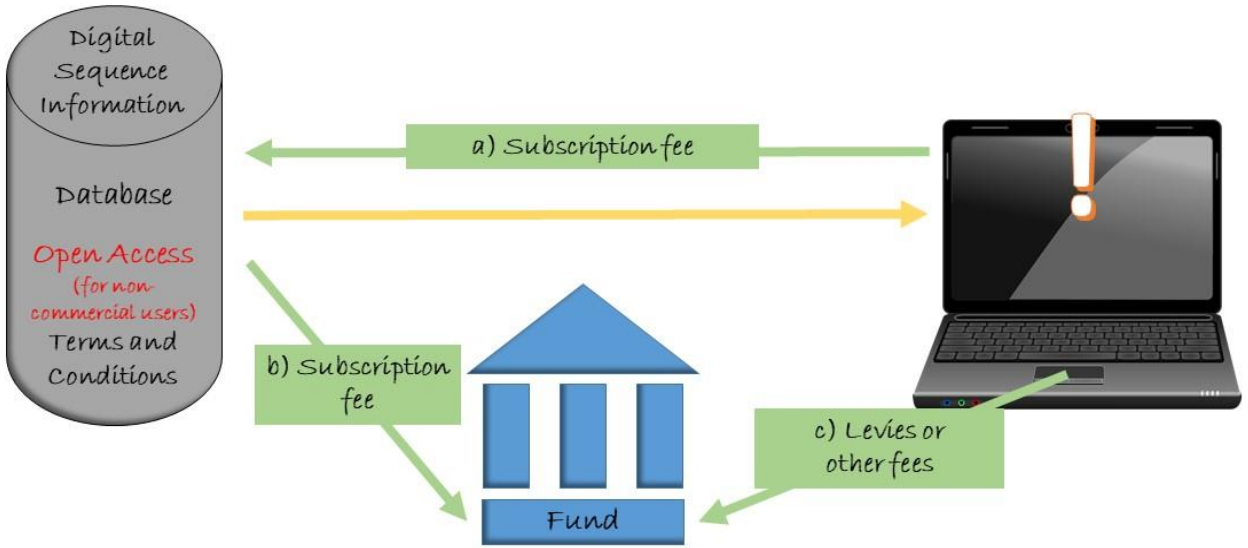
Model - Option 4

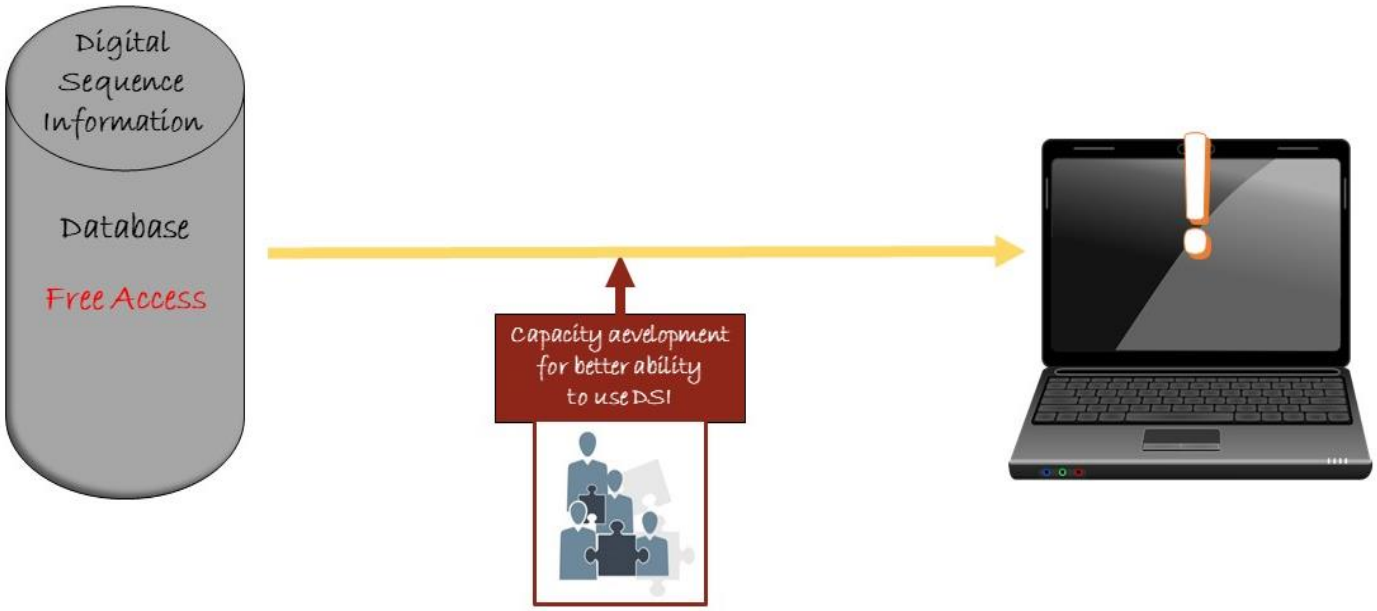
4: (Open access) - subscription fee / levies



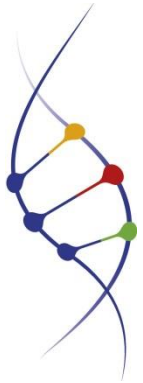
1st Global DSI Dialogue

Model - Option 5

5: Free Access - Capacity Development



The road to COP 15



Next steps?

Feb: Information session at OEWG 2

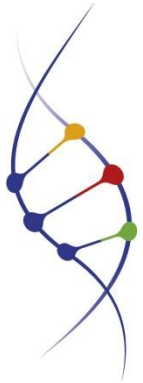
Mar: DSI AHTEG

June: **2nd Global DSI-Dialogue (Aix-en-Provence, France)**

July: OEWG 3 (DSI on the agenda)

Oct: COP 15 in Kunming

Additional information



Supporting the science-policy process

- Introductory Guide on DSI (available in French and English)
- DSI Global Dialogues
- Two studies
  - Commercial use of DSI
  - Concepts for multilateral approaches to benefit-sharing (use of DSI and genetic resources)

Thank you! Questions?

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