

What is DSI and why is relevant for ABS?

Christopher H C Lyal, Natural History Museum,
London, UK

and

Lactitia Tshitwamulomoni, Dept of Environment,
Forestry and Fisheries, Pretoria, South Africa

What is Digital Sequence Information ('DSI')?

- 'DSI' is generated during scientific research on Genetic Resources
 - Many processes develop what might be considered 'DSI'
including
 - Sequencing DNA and RNA
 - Structural annotation of those sequences
 - Analysis of the functionality of genes
 - Analysis of protein molecular structure
 - Analysis of epigenetic modifications (non-genetic heritability)
 - Analysis of cell metabolites



What is Digital Sequence Information ('DSI')?

Key concept: availability of result on database or other platform that is outside control of provider country of original GR

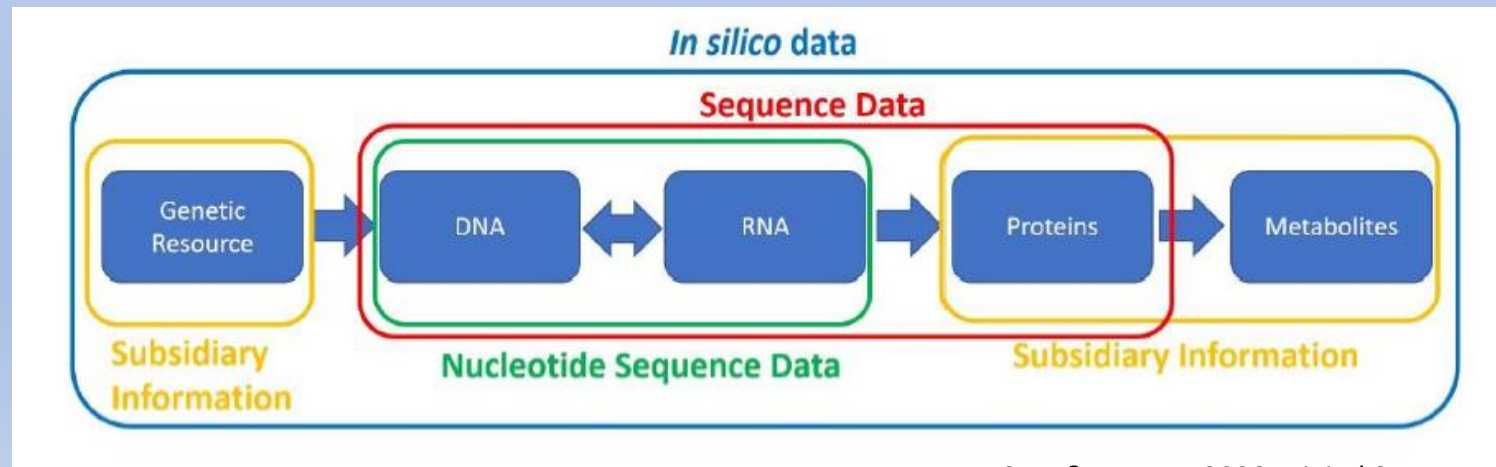


Plus thousands of others

Third parties can download and use DSI

What is DSI?

- ‘DSI’ is a placeholder term for CBD negotiations
- There are different concepts of DSI, more or less inclusive
 - From the simple order of nucleotides in a strand of DNA
 - To the structure of proteins for which the DNA is coding
 - To the biochemical composition of molecules produced within cells (metabolites)
 - To ‘natural information’ or ‘in silico’ information



What is DSI?

These concepts have different properties, different names, are used by different stakeholders and found in different places.

- Negotiators need to be able to understand what they are discussing (and know when they are talking about different concepts!)
 - Therefore it is necessary to understand the coverage of the term.
- Remit of the AHTEG this year included developing “*options for operational terms and their implications to provide conceptual clarity on [DSI]*”
 - In this element made use of the report on *Concept, scope and current use*
 - Identified three different ‘groups’ using rationale of degree of biological processing and the proximity to the underlying genetic resource

What is DSI?

	Information related to a genetic resource			
	Genetic and biochemical information			Associated information
Group reference	Group 1	Group 2	Group 3	
High-level description of each group	DNA and RNA	Group 1 + proteins + epigenetic modifications	Group 2 + metabolites and other macromolecules	
Examples of granular subject matter	<ul style="list-style-type: none"> • Nucleic acid sequence reads; • Associated data to nucleic acid reads; • Non-coding nucleic acid sequences; • Genetic mapping (for example, genotyping, microsatellite analysis, SNPs, etc.); • Structural annotation. 	<ul style="list-style-type: none"> • Amino acid sequences; • Information on gene expression; • Functional annotation; • Epigenetic modifications (for example, methylation patterns and acetylation); • Molecular structures of proteins; • Molecular interaction networks. 	<ul style="list-style-type: none"> • Information on the biochemical composition of a genetic resource; • Macromolecules (other than DNA, RNA and proteins); • Cellular metabolites (molecular structures). 	<ul style="list-style-type: none"> • Traditional knowledge associated with genetic resources • Information associated with digital sequence information Groups 1, 2 and 3 (for example, biotic and abiotic factors in the environment or associated with the organism) • Other types of information associated with a genetic resource or its utilization.

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- The proposed groups are cumulative
 - Group 2 includes all elements of Group 1, and Group 3 contains all elements of Groups 1 and 2
 - AHTEG made distinction between *genetic and biochemical information* as included in Groups 1 to 3 and *associated information related to a genetic resource* [e.g. ‘contextual’, ‘associated’, or ‘subsidiary information’ and traditional knowledge associated with genetic resources (aTK)]

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- Groups 1-3 could be considered as DSI, while associated information, including aTK, is not considered DSI
 - **But** the AHTEG recalled obligations to share benefits from the utilization of aTK under the Nagoya Protocol and the CBD
- Issue now back with the negotiators to make use of this clarification

Why is DSI relevant for ABS?

- DSI is a product of utilisation of GR
- In some cases it can be used as a surrogate for the original GR in the R&D process
- Acquiring and using DSI can operate outside the modalities worked out in the Nagoya Protocol
- Many countries see the use of DSI as a workflow that can lead to the same outcomes as utilisation of GR but with no benefit-sharing requirement
 - therefore are seeking to apply ABS modalities to DSI
- Some countries have explicitly included DSI in national legislation and are also seeking a means of addressing benefit-sharing and DSI under the CBD