DEANNA J. STOUDER COACHING

Bring value to your vision

iDigBio
Integrated Digitized Biocollections
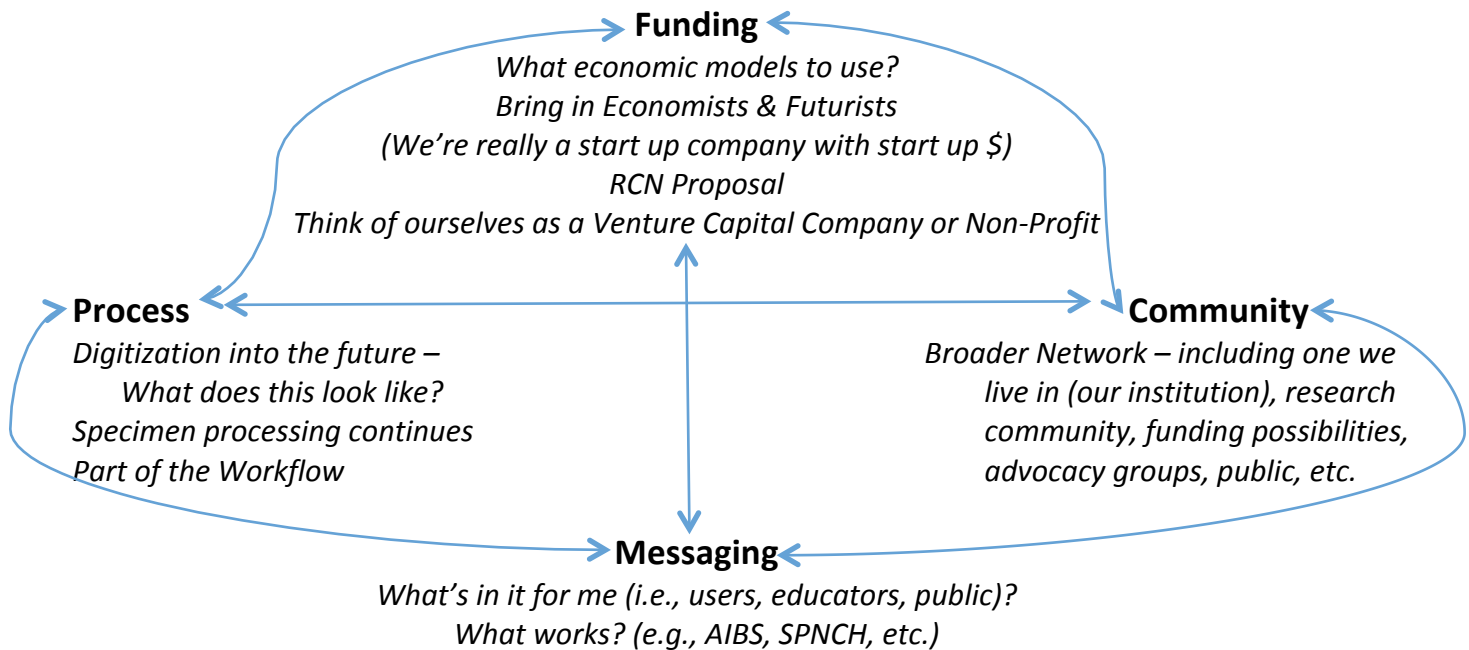
Sustainability Workshops

19-20 November 2013

Summary

A workshop (17-18 September 2012) funded by the National Science Foundation (NSF) and organized by the American Institute of Biological Sciences (AIBS), provided the setting to develop an Implementation Plan for the Network Integrated Biocollections Alliance (NIBA). This group recognized the tremendous value of biocollections for research, education, and society. Specifically, the NIBA Implementation Plan (Goal 5) wanted to ensure that this dynamic electronic resource endures. Factors that will encourage its sustainability include the following: 1. Fostering the widest possible participation. Many players should have a stake in NIBA's long-term success, 2. Highlighting the importance of and need to digitize biological collections across the country, and 3. Configuring NIBA as an essential resource that attracts an ongoing revenue stream because its products are highly valued and widely used.

Embarking on the path to an enduring and sustainable National Digitization effort requires consideration of several aspects. First, what effective economic models might be useful to sustain these efforts (5.1)? Second, Which funding agencies promote and support ongoing digitization activities, directly and indirectly, and how can these be leveraged (5.2)? Third, what are the most effective methods to secure institutional support for digitization and the staff and infrastructure required to underpin this work (5.3)? Fourth, What is the long-term technological vision for the next generation of digitization activities (5.4)? In addition, Who and what organizations haven't we considered that might support our efforts? The effort towards sustainability includes all levels of the effort – from individual collections and tools, to the established Thematic Collection Networks (TCNs), to iDigBio and search protocols, and ultimately to the National Digitization work. Simultaneously the AIBS, Natural Science Collections Alliance (NSCA) and Society for the Preservation of Natural History Collections (SPNCH) have submitted a proposal to NSF, in the Advancing Digitization of Biodiversity Collections (ADBC) program, for completion of the NIBA Implementation Plan Goals. The success of that proposal is pending.

During 19-20 November 2013, at the iDigBio Summit, two workshops were designed to develop a plan for sustainability of the National Digitization work. The results of the Pre-work Survey and Workshops are provided within this report.

Overall View of Sustainability

Funding

What economic models to use?
Bring in Economists & Futurists
(We're really a start up company with start up $)
RCN Proposal
Think of ourselves as a Venture Capital Company or Non-Profit

Process

Digitization into the future –
What does this look like?
Specimen processing continues
Part of the Workflow

Community

Broader Network – including one we
live in (our institution), research
community, funding possibilities,
advocacy groups, public, etc.

Messaging

What's in it for me (i.e., users, educators, public)?
What works? (e.g., AIBS, SPNCH, etc.)

Embarking on the Path Forward & Keeping the Ball Rolling

Workshop participants decided to develop a **Sustainability Working Group.**
Group is charged with writing a report that includes :
Purpose – Investigate the feasibility of « *Charging for the use of*
Data Services ».
Describe the Benefit to the National Digitization Effort.
This will clarify funding needs and expectations
Membership :
Hank Bart
David Bloom
Suzette King
Kevin Love
Barbara Thiers
Will present a report to iDigBio and the group

Pre-Summit Preparation :

As we prepared for the Summit, Dr. Larry Page, David Jennings, and Dr. Deanna Stouder discussed the goals all wanted to achieve after the completion of the Summit. Specifically, with respect to Sustainability of the iDigBio effort, everyone wanted to describe a path forward for long-term sustainability. We developed a questionnaire for participants to complete prior to the Summit. This survey was distributed to all participants and 21 responded. The summary of their responses was provided to all participants during registration.

In response to question #1 « ….what one area needs the most attention…. ?» several comments were expressed most often. There was a strong desire for broadly defined partners and collaborators. In addition, people described variable Information Technology resources as limiting their abilities, especially those for small collections. They also described the importance of collections' value as education and information resources.

These themes showed up in response to question #2 around « …address one problem… over the next 18-24 months…. » and « …over the next 5-10 years ? » Collaboration and information technology continued to rank highest, as well as the important role of communication (i.e., messaging of the value). Several respondents expressed the need for a Business Plan to clarify costs, staffing, data access needs, and more. Subsquentlly, in question #3 respondents provided a great list of possible multidisciplinary and unique partners (see Appendix 1).

Workshops :

We opened the first workshop session by framing the problem : Embarking on the Path to Sustainabilty. Dr. Page set the stage by discussing the « Implementation Plan for the Network Integrated Biocollections Alliance (NIBA) » and embedded goals. Specifically, Goal 5 : Establish an enduring and sustainable knowledge base, is key to the work we will conduct over the next couple of days. Within Goal 5 there are five elements : 1. Identify and assess alternative economic models for NIBA, 2. Institute changes in federal grant policies to support NIBA objectives, 3. Secure institutional level support for digitization and access to staffing for collections and technical informatics support, and 4. Create a technology vision plan for the next generation digitization future of NIBA. He raised the question « What do we want ? »

Dr. Stouder described the Summary of the Pre-Summit questionnaire. The Top Three Ideas from the questionnaire, included : 1. Bring together multidisciplinary collaborators [Thinking (and Acting) beyond Traditional Boundaries], 2. Sending a Common Message that is BOLD (Talking Points around Value, Questions and Problems solved with these efforts), and 3. Developing a BIG/Overall Business Plan (How to fund the national effort beyond iDigBio ?).

Great discussions ensued around all three of these areas. Multidisciplinary collaboration centered around the idea of bringing a wide diversity of people together – those who may not think like we do, or who may not know why this effort is important. Bringing

people together who may challenge us up-front may result in a stronger outcome at the end. A lot of passion arose around the topic of Messaging. We want to be aspirational and describe how what we do is important to a mixture of people and supporters. Ulitimately the discussion centered on developing some key talking points that everyone uses. Once these are developed there was a desire to practice posing questions and using the key talking points to answer. Discussion around the topic of business plans seemed to raise the most challenges. These focused on the ideas of sustaining funds, user fees, funding sources, and the variability among small and large collections.

During the second workshop, Keeping the Ball Rolling, Dr. Page summarized the discussion from the first day. We agreed that demonstrating the value of the collections is fundamental ; digitization is (should be) part of normal curatorial process ; and ADBC established this (analogous to a startup company). He, then posed the question « How do we sustain the data, networks, and the process ? » Dr. Stouder followed reinforcing that Sustaining the iDigBio/Digitization efforts is important because : a. there is a great deal of variability among the size of efforts (i.e., big and small collections have different challenges), b. you have high value data and have conducted great work, and c. the future of the planet depends on your work. This requires a Culture Shift by all members – **How to become independent ?** We discussed underlying assumptions because they influence the path forward. Specifically, we assumed several things. First, researchers will pay for digitization. This requires that digitization will be high quality and, where appropriate, researchers will include payment as a percentage of research project proposals and funding. Second, money will come from the National Science Foundation (NSF) and federal agencies. During this component of the discussion we heard that NSF funds are initially provided for infrastructure then for research. Given the current economic environment money from federal agencies may become more limited. We really need to diversify our funding base. Third, we agreed that we have avoided the use of social media and messaging that could enhance funding opportunities.

The group developed a model for sustainabilty that included the components of funding, process, community, and messaging (see Summary graphic). This guided us to respond to Dr. Page's question « What do we want ? » with a proposal for a **Sustainability Working Group**. The charge for the group of five volunteers is to write a proposal to « Conduct a feasibility study around « Charging for the use of Data Services. » » This proposal is part of the requirements for iDIgBio funding from participants. Once the proposal is reviewed and potentially funding the group will move forward with their charge. This Working Group will present their report to iDigBio and to the broader TCN community.

Plan to Move Forward:

We plan to move forward taking the following steps :

1. Form the Sustainability Working Group which will be funded by iDigBio
   a. Charged with conducting a feasibility study around *« Charging for the use of Data Services .»* This will :
      i. Clarify funding needs, and
      ii. Expectations for the support of the National Digitization effort
   b. Invite members to an initial meeting to determine :
      i. When to initiate work,
      ii. When do we want the work completed ?, and
      iii. Clarify outcomes expected.
2. Anticipate funding of the AIBS, NSCA, SPNCH proposal to assist in addressing sustainability issues.
3. Continue emphasizing the importance of addressing sustainability with :
   a. Workshops organized by iDigBio, and
   b. Working Groups.

Appendices

1. Pre-Summit Questions SUMMARY

2. Sustainability Workshop 1: Embarking on the Path - SUMMARY

3. Page Presentation

4. Sustainability Workshop 2: Keeping the Ball Rolling - SUMMARY

Appendix 1
iDigBio Summit
Pre-Summit Questions SUMMARY

Thinking broadly and creatively:

1. If you were able to chart a course, without limits, what one area [i.e., topic, problem, concern,] needs the most attention in order to ensure sustainability of the national digitization effort?

    Need Partners and Collaborators – broadly defined – 6
       Establish a foundation linked to existing foundations
    IT – including portable imaging, web-accessible data, cyberstructure, support, support tools – 5
    Broad-scale education/informational value - 5
    Value of mid- & small-sized collections - 4
    Clear value proposition/relevance - 4
    Data formats – interoperable data - 3
    Investment in people – staffing and training - 3
    Long-term commitment – 3
    Challenge of regional versus non-N. Am. Collections (teaching collections?) – what to do?
    Public Participation
    Marketing – increase visibility
    Adequate funding, equipment, digitizers

2. If you could address only one sustainability problem related to the national digitization effort, what would it be and why?
    a. Over the next 18-24 months?

        Foster true collaboration or explicit competition – 5
           "The road to digitization hell is paved with good intentions that are poorly implemented."
        Create an NSF program for these efforts
        Create contest to solve problem
        Develop active, independent working group
        Integrated components for georeferencing and duplicate matching, unique identifiers, consistent standards, data ingestion - 5
        Complete work on best (most accurate) workflow – 4
           Step-by-step workflow, Prioritization of needs (urgency)
           Public participation – 2
           IT support - 2
               Updates conveyed

2.   a. (continued)
        Qualify specimens - 2
            ID key attributes
            Challenge of missing information
            Full digitization
        Ready-to-use services – user-based tools - 2
        Create clear plan/message
        Enhance education value
        Archival storage
        Benchmarking the value
        Skill Development
        Identify the audience
        Publish data
        Break down barriers for increased digitization and data sharing
        Continuous support for services/tech support for maintenance

    b. Over the next 5-10 years?

        Business Plan: clarify costs, sources of funding (maintenance of funding), staffing
            (digitization technical positions, social media guru/manager), long-term solutions (image
            storage, equipment lending, data aggregation), data access & storage, room for
            improvement - 7
            Describe value proposition to larger academia and public - 5
        Funding (broadly) - 4
        Online tools (including statistical analyses, 3-D viewing, geographical plotting, etc.) – Off-
            the-shelf documents, documents, IT contact person, links to other specimens - 3
            Public participation
            Learning applications/Lesson Plans – Adaptive process
            Enhance scientific literacy
            Set realistic goals
            High standard of practice
        Long-term federal funding ("We don't want today's infrastructure to be tomorrow's
            disappearing resource.")
        Long-term data portals
        Marketing
        National efforts integrated with Global efforts
        Data Publication
        Incorporate more specimen data (beyond themes)
        Create a Digitization Institute – bring people together regularly

3. If you were able to get others to join you in solving that problem, who would that include?

Multi-disciplinary teams – 6
(including ecologists, systematists, social scientists, etc.)
Federal Agencies beyond NSF - 4
Museum directors/Collections Staff (including international) - 3
Diverse working group of educators (including K-16) and innovators - 3
Appropriate discipline-based societies - 3
Business administrators -2
Biodiversity Leaders - 2
Citizen science community - 2
People behind - Notes from Nature, GeoLocate, ALA volunteer portal, Symbiota, Paris
Herbarium publish participation project
Cross-institutional and TCN representatives in Education/Outreach and scientists
NIBA representatives
Federal collections community
Private Environmental Foundations
Organizational Leaders
Project Managers
Policy Makers
Business communities
Landscaping/Gardening
Forestry
Fisheries
Agriculture
NEON community
International community
Individuals mentioned:
Paul Morris, Barbara Thiers, Stan Blum, Dean Pentcheff, Katja Seltmann, Michael Denslow, Greg
Riccardi, Alex Thompson, Renator Figueiredo, Lucinda McDade, Jim Hanken

Appendix 2
iDigBio Summit
Sustainability Workshop 1: Embarking on the Path - SUMMARY

Top Three Ideas:

1. **Bring together Multidisciplinary Collaborators**

    "Thinking (and Acting) beyond Traditional Boundaries"

2. **Common Message - "Be Bold"**

    Talking points that represent the "What's in it for them?"
    (Elevator, Cab Driver speeches)
    What questions can be answered now, that couldn't be before?
    What problems can be solved with these efforts, that couldn't be
    solved without this high quality, accessible, linked effort?

3. **BIG Structural Business Plan**

    How to fund the National Effort beyond iDigBio?
    Framework under which all of the local efforts can "hook onto."

Discussion around three big ideas and others:

1. **Multidisciplinary Collaborators**

    Stonyfield Yogurt
    Who else? Bring in a diversity of people - challenge up front; stronger
    outcome at the end

2. **Common Message**

    Value proposition
    Communicate the value of our data
    When bring in large $ people listen
    Open access to data (e.g., iDigBio) great
    Who's using the data
    Awareness of Community who is the Funder of the data
    Content versus Service
    Who is the Community?
    What is the contribution to a Larger Goal?
    What is the End Game?
    Mixture of Messages - Aspirational Goal
    Biodiversity, however, what value does this have to the larger
    public? Needs to link to specific examples.

Why (5X)?
Pose questions and answer
Messaging Practice with Key Talking Points that everyone uses

3. Business Plans

To Sustain funds - what examples already exist? (e.g., CSU, Tulane, JSTOR)
User fees - high quality data, pay for costs (e.g., GBIF - countries pay to be part of this, however, there are missing countries)
Funding sources - What is being funded?
> Digitization is a small piece
> Data Quality - big issue
> Centralized Repository

What is the product we are trying to sustain? Data?
Or, questions asked and answered
Or, used and useful information (high quality and quantity)
What we have now is a start-up company (and start-up $). Where do we go from here?

Additional Thoughts:

Outcomes from iDigBio?
> Degrees produced
> Jobs provided
> $ to the local/regional economy (or Nationally)

Thematic questions on science

Think about for tomorrow - Sustainability Workshop 2:
What will be the Path Forward on these three areas?:
1. Multidisciplinary Collaborators
2. Common Message
3. Business Plan - framework (row boats -> fleet)

How to move forward?
Who will move each forward?
When do you plan to get each done?

Appendix 3
Page Presentations

Keeping the Sustainability Ball Rolling

- **National digitization effort**
- **TCNs**
- **iDigBio – search portals**

This discussion will build on the previous day's session, "Embarking on the Path to Sustainability," by examining how each strategy for sustainability can be developed. Which constituencies, including providers and users of data, business specialists, sustainability experts, representatives of funding agencies, technologists, information scientists, and futurologists, need to be involved?

Embarking on the Path to Sustainability

- **National digitization effort: NIBA**
                        (Network Integrated Biocollections Alliance)

- **TCNs – established groups**

- **iDigBio – search portals**

- **Tools**

Embarking on the Path to Sustainability

- **National digitization effort: NIBA**
                        (Network Integrated Biocollections Alliance)

- **TCNs – established groups**   **NETWORKS**

- **iDigBio – search portals**   **DATA**

- **Tools**   **PROCESS**

Embarking on the Path to Sustainability

- Agreed that demonstrating the value of the collections is fundamental

- Digitization is (should be) part of normal curatorial process

- ADBC established this; analogous to a startup company

- How do we sustain the data, networks and the process?

Embarking on the Path to Sustainability

1. What effective economic models might be useful?
2. Which funding agencies promote and support ongoing digitization activities, directly and indirectly, and how can these be leveraged?
3. What are the most effective methods to secure institutional support for digitization and the staff and infrastructure required to underpin this work?
4. What is the long-term technological vision for the next generation of digitization activities?
5. Who and what organizations haven't we considered that might support our efforts?

Embarking on the Path to Sustainability

- What we want….

- Some ideas for how…

- **Who?**

Embarking on the Path to Sustainability

- **One initiative in place: AIBS, SPNHC and NSC Alliance has submitted a proposal to NSF/ADBC to implement goals of the NIBA Implementation plan**

- **- one of which is Sustainability (Goal 5)**

    elements are:

From NIBA Implementation Plan:

1. Identify and assess alternative economic models for sustaining NIBA.

- Convene a panel representing cross-cutting disciplines to develop and assess economic models for sustaining NIBA, including strategies for both revenue enhancement and expense reduction and including relevant information from analogous national-level resources in other countries. Any viable model should ensure ongoing support for relevant collections infrastructure and operations, including specimen acquisition, digitization, data and specimen curation, and data preservation. Intellectual property and other legal considerations that pertain to data sharing and use should be evaluated, especially regarding the possible use of data products as a source of revenue.

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From NIBA Implementation Plan:

2. Institute changes in federal grant policies to support NIBA objectives.

- Work with federal agencies that fund specimen-based biological research to develop an agreement or policy that would <u>require researchers to provide in each grant proposal a data management plan that includes the digitization of collections data as well as safe-guarding of physical specimens; to digitize such data in accordance with community-wide standards; and to share such data with NIBA</u>.

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From NIBA Implementation Plan:

3. Secure enduring institutional support for collections digitization through access to staffing (collections) and technical (informatics) support.

- Demonstrate the value of physical and digital collections to the institutions that maintain them.
- Encourage collections institutions to establish long-term (perpetual), robust, and cost-effective plans for data archives.

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From NIBA Implementation Plan:

4. Create a technology vision plan for the next-generation digitization of NIBA.

- Commission a forward-looking report that addresses the next generation of digitization, as well as related long-term maintenance, archiving, and stewardship issues. At a minimum, the report should address future efforts, funding, and the status of collections digitization.

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Who leads this effort?

- RCN proposal submitted to ADBC

- Other ideas?

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Who leads this effort?

- RCN proposal submitted to ADBC

- Other ideas?

- Suggest: we zero in on what are the elements of sustainability.
- Or what kind of expertise do we want on the team?

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Who leads this effort?

- JOIN NSC Alliance! (societies and institutions)
- JOIN SPNHC (individuals)
- JOIN AIBS (societies and individuals)

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- *Some institutions will continue as part of normal curation activities; as new specimens are brought in – the methods are in place and databasing, georeferecening and imaging can be done as part of the normal process. Colo State Univ. Insect Collection.

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- Others will need funding – for new and legacy collections.

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- Others will find new ways to get the work done. Crowd-sourcing – gaining traction, great potential to accelerate the work.

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- We heard this morning that getting info online increases use of collections – very important verification that our activities are increasing awareness – certainly the more people involved, the more likely we are to successful in become sustainability.

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- Video-based tutorials will be available to keep things going.
- Symbiota and Specify are making modifications to facilitate some of the activities necessary to keep digitization.

From NIBA Implementation Plan:

- Factors that will ensure that NIBA endures include the following:
- Fostering the widest possible participation. Many players should have a stake in NIBA's long-term success.
- Highlighting the importance of and need to digitize biological collections across the country.
- Configuring NIBA as an essential resource that attracts an ongoing revenue stream because its products are highly valued and widely used.

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Appendix 4
iDigBio Summit
Sustainability Workshop 2: Keeping the Ball Rolling – SUMMARY

Discussion began from work yesterday:
> Acknowledged Enthusiasm for thinking and acting beyond traditional boundaries for
>> Sustainability
> Be Bold - Common message and talking points
> Need for Business/Implementation Plan for Sustainability

Sustaining iDigBio/Digitization efforts important because:
> Variability among the size of efforts
> Data extremely important - high value and great work!
> Future of the planet depends on us.

Reviewed the NIBA Implementation Goal for Sustainability (Larry's slides)

Requires a Culture Shift - **How to become independent.**

Underlying Assumptions discussed:
1. Researchers will pay for digitization
   a. Has to be high quality
   b. Need a grant line to pay for this
   c. A percentage needs to come from research projects (whether they
      are State, NPS, or other contracts)
2. Money will come from NSF & Federal Agencies
   a. NSF funds initially for Infrastructure then for Research
3. Social Aspects are avoided

Is the question - How I am sustainable or how are WE sustainable??
> Is this an individual or community endeavor?

Need to find ways to "sell the service." What is the Value Add?

What about Governance with Central Leadership?