Smart Grid Grants

Department of Energy (DOE)
Grid Deployment Office (GDO)
Office of Clean Energy Demonstrations (OCED)

BIL – Grid Resilience and Innovation Partnerships (GRIP)

Funding Opportunity Announcement (FOA) Number: DE-FOA-0002740

Enhancing Interoperability and Data Architecture of Systems

Model Digital Ecosystem for Community Resiliency

Formation Community

XBRL US Taxonomy
XBRL International Taxonomy
GAAP Reporting
International Financial Reporting Standard

Orange Button Community

Individual but Collaborative – Independent but Integrated

Open for Collaboration

Open for Collaboration

Financial Data Exchange Community

Construction Progress Coalition Community

December 16, 2022

Smart Grid Grants

Enhancing Interoperability and Data Architecture of Systems

Individual Concepts:
 Orange Button
 Formation Initiative at Texas A&M
 Financial Data Exchange – FDX
 Construction Progress Collation - CDX
 SRC Expanding the XBRL Taxonomy, FDX, CDX and JSON

Integrated Concept:
 Unleashing the Power of Data Standardization

Individual but Collaborative – Independent but Integrated

Enhancing Interoperability and Data Architecture of Systems Concept - Unleashing the Power of Data Standardization

Submission to DOE

UN Sustainable Development Goals

Hierarchy of Data

June 1st Recommendations Submitted to DOE

November 18th Recommendations Submitted to DOE

Concepts

Orange Button / SolarApp

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Expanding XBRL Taxonomy, FDX, CDX and JSON

Unleashing the Power of Data Standardization

Summary

Enhancing Interoperability and Data Architecture of Systems Concept - Unleashing the Power of Data Standardization

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Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Project Concept:

Expand the XBRL Taxonomy to Support Model Digital Ecosystem for Community Resiliency to unleash the power of data standardization with a multi-stakeholder effort that is individual but collaborative, independent but integrated, that results in:

A "Model Digital Ecosystem for Community Resiliency" that identifies and incorporates all the data elements that need to be in the XBRL taxonomy and establishing an open standards based digital ecosystem model that can be utilized by any system and replicated by any community.

Expanded the XBRL taxonomy as a public benefit that can be monetized by the private sector and leveraged by public agencies; local, state and federal.

Accelerating the implementation of private digital construction management systems that align with all federal agencies, specifically SEC, SBA, GSA, DOE and DOT.

Topic Area being addressed: Topic Area #2
    Smart Grid Grants - Enhancing Interoperability and Data Architecture of Systems

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Concepts

Group Concept

    SRC – Model Digital Ecosystem for Community Resiliency to establish data sets, expand XBRL taxonomy, OB JSON and FDX and implement individual concepts

Individual Concepts

    Orange Button – Product registry, project monitoring and more.
    Construction Progress Coalition – Contract UUID registry and CDX

Outreach and Education

    OS2/Texas A&M – Accelerated Capital Project Formation (ACPF) research initiative
    Digital 360 Summit
    American Resilience Project

Each collaborator has value, but the sum of the whole is far greater than the sum of the parts.

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Deliverables

1. Novato California micro-grid to demonstrate how XBRL and data interoperability will enable an extended public/private digital ecosystem, promote innovation and competition, plus provide grid resiliency that can be replicated by other communities

2. Expanded XBRL Taxonomy with established data sets that will enable mapping across systems and other data standards.

3. Establishing data interoperability with international stock markets for financial reporting in IFRS/XBRL will enable an international supply chain.

4. Extensive university participation for greater outreach, transparency, collaboration and production of free software models and demonstrations.

5. Shareware basic code available on GitHub for converting, sending and receiving standardized data sets in XBRL or Excel.

6. Low-cost subscriptions for applications available on the Salesforce platform for converting, administering, sending and receiving data sets in XBRL or Excel.

Enhancing Interoperability and Data Architecture of Systems
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Funding Request (Subject to Adjustment) – Requires 50% Cost Sharing

SRC Digital Insurance Services is the lead with funding under this concept paper going to the following collaborators

$30,000,000   To City of Novato for Model Digital Ecosystem for Community Resiliency

$2,000,000   To XBRL US for expanding the XBRL taxonomy

$200,000   To SRC for retaining Robots and Pencils for shareware software code for developers and low-cost subscriptions for consumers to exchange data.

$250,000   To American Resilience Project Documentary - Unleashing the Power of Data Standardization.

$100,000   To CMG Consulting – Sponsorship for the 2023 Digital 360 Summit
$32,550,000

Enhancing Interoperability and Data Architecture of Systems
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Texas A&M

Collaborators and participants have the option to engage with Texas A&M University to learn about their research and participate in some of their pilot projects.

Institute for Sustainable Communities
Accelerated Capital Project Formation

Outreach and Education - Texas A&M University

The Accelerated Capital Project Formation (ACPF) research initiative at Texas A&M University (TAMU), led by Dr. Stephen Mulva, Research Professor of the Practice in the Department of Construction Science (COSC) in the School of Architecture (SOA at TAMU), provides a global hub for advanced project planning and execution for capital projects and programs for Facilities & Infrastructure (F&I), which are technically and managerially complex. Its main goal is to leverage and integrate, within architecture, engineering, procurement, and construction capital projects, the knowledge and experience stemming from the best and most advanced concepts and developments from multiple business and technical knowledge domains, to (1) enable the creation of an agile, resilient, affordable, predictable, and reliable ecosystem for the execution and delivery of F&I capital programs and projects in any sector of the economy; and (2) improve the Return on Investment (ROI) performance by overcoming the rising transactional costs, waste, and delays that today's investors, businesses, and government agencies in the U.S. and around the world face as a result of the traditional approaches to the planning, architecture and engineering design, procurement, construction, and operations and maintenance of F&I.

Enhancing Interoperability and Data Architecture of Systems Concept - Unleashing the Power of Data Standardization

Institute for Sustainable Communities
Accelerated Capital Project Formation

The foundation to achieve this goal and these two breakthrough gains is a shift of focus from project management premised on the bespoke nature of F&I and the improvement of work processes, to a strong focus on a business process orientation based on standardization and program management. The overall strategic goal of the ACPF is to build on this foundation an ecosystem of alignment, trust, and collaboration within all facets of execution and delivery of F&I capital programs and projects, combined with optimal arrangement of stockholders and stakeholders, financing, enabling technologies, and commercial provisions. More specifically, ACPF tactical objectives include the development of: (1) a neighborhood-based commercial environment (for acquisition and contracting); (2) a transcendent production environment (for manufacturing and assembly); (3) a revitalized logistics environment (for supply chain, risk handling, and work instructions); and (4) a novel measurement environment (for progress monitoring and benchmarking).

Enhancing Interoperability and Data Architecture of Systems
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Institute for Sustainable Communities
Accelerated Capital Project Formation

The ACPF research initiative is one of the cornerstones of the Institute for Sustainable Communities (ISC) at TAMU, led by Dr. Jorge Vanegas, Professor of Architecture (ARCH) in the SOA and Professor of Civil and Environmental Engineering (CVEN) in the College of Engineering (COE). Through high-impact service learning, high-impact engaged research, and high-impact engagement with society at a community level, the ISC is builds capacity within communities in four interdependent and cohesive thrust areas: (1) community livability, structured around the 17 United Nations Sustainable Development Goals as parameters of livability; (2) community resilience to disasters and traumas caused by natural phenomena and human actions, structured around preparedness, mitigation, response, and recovery; (3) community sustainability in the natural, built, virtual, and social environments; and (4) smart and cognitive technologies to support livability, resilience, and sustainability.

The overall strategic goal of the ISC is to enable quality of life for people, quality of place in the natural, built, virtual environments, and quality of human endeavors in the social environment.

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Institute for Sustainable Communities
Accelerated Capital Project Formation

More specifically, ISC tactical objectives include the application of: (1) an alignment process to identify and bring together community stockholders and stakeholders and develop a vision of the future that the community aspires to have; (2) a convergent process that, through research, development, demonstration, deployment, evaluation, and dissemination, responds to community drivers – questions to answer, problems to solve, needs to satisfy, opportunities to realize, and aspirations to fulfill; (3) a divergent process, which based on creative, innovative, design, entrepreneurial, and digital thinking, responds to community drivers with new products, processes, services, experiences, business models, and enablers, obstacle-removers, and barrier-breakers; and (4) a process to manage ecosystem connectivity and change.

The ACPF and the ISC fully support this concept paper.

Dr. Jorge A. Vanegas, Director
Institute for Sustainable Communities
School of Architecture @ Texas A&M University
3137 TAMU; College Station, TX. 77843-3137

Enhancing Interoperability and Data Architecture of Systems Concept - Unleashing the Power of Data Standardization

Proposed Timeline

January 27, 2023 - DOE response and feedback
Before March 27, 2023

1. City of Novato formally considers the prospect of being a host city and develops a preliminary budget to administer the project. Note: timeline subject to City regulatory process.
2. Contractor prepares budget for Solar and Storage on all campuses
3. Earthgrid prepares budget for underground tunnels to connect all 17 campuses and create an underground community micro-grid.
4. Electric School Bus company prepares budget for electric school bus fleet
5. Construction Lead prepares a formal proposal to the City of Novato as the prime contractor coordinating all aspects of the project.
6. XBRL US establishes budget to undertake the review and comment period for expanding the XBRL taxonomy with all the additional data elements identified in the process of developing the model digital ecosystem with all the stakeholders
7. Collaborators prepare to submit data elements to XBRL to facilitate the data sets identified in the June 1st DOE, recommendation #2

Enhancing Interoperability and Data Architecture of Systems Concept - Unleashing the Power of Data Standardization

Proposed Timeline

Summer 2003 - Selection Notification

City of Novato undertakes regulatory process to act as project host city, receiver of the grant, and project owner under a prime contract with construction lead administering the digital "community" with smart contract and blockchain.

Construction lead prepares a total project budget administered as a digital "community", negotiates subcontracts that implement smart contracts and blockchain, and negotiates a construction "smart contract" with the City of Novato

Collaboration group identifies the initial data sets and associated data elements to be incorporated into the XBRL taxonomy.

Collaborators prepare an outreach, education and engagement strategy with trade associations and industry events.

Fall 2023   DOE Award

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Proposed Timeline

August 2023
City of Novato and construction lead enter into prime "smart contract" with blockchain.
City of Novato and Electric School bus company into "smart contract" with blockchain.
Construction lead enters into subcontractor "smart contracts" and coordinates with electric school bus company
XBRL US opens the process to submit data elements for incorporation into the XBRL taxonomy

September 2023
Construction begins
Outreach Presentation at the Digital 360 Summit

November – December
Solar and Storage installed (subject to supply chain and regulatory)
Electric school bus fleet operational
Underground tunnel connecting all 17 campuses is operational

January 2024
Model Digital Ecosystem is complete
XBRL US undertakes review and comment period for all the additional data elements that have be added to the XBRL taxonom

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Unleashing the Power of Data Standardization

Summary

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

UN Sustainable Development Goals

7 - Affordable and Clean Energy
Reduce the administrative costs of permitting and construction
Increase risk management capabilities to reduce exposure to lenders for better terms.

9 - Industry, Innovation and Infrastructure
Accelerate the implementation of digital construction management systems, public and private.
Model utilizes open standards so software developers have no constraints, trademarks or exclusivity to implement data exchange.

11 - Sustainable Cities and Communities
Model Digital Ecosystem can be easily replicated without changing software platforms.
SoalrApp is ready to be implemented to help reduce administrative costs and speed up timelines for permitting solar projects

12 - Responsible Consumption and Production
The demand for energy will put pressure on generation and meeting demand will be a challenge. Enabling the production of clean energy to be more efficient so clean energy can be price competitive to fossil fuels will drive responsible consumption and production.

13 - Climate Action
Accelerating the construction of all clean energy infrastructure projects that connect to the smart grid is direct climate action.

17 - Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development
Expansion of the internationally recognized XBRL Taxonomy for infrastructure related data elements will promote and enable global partnerships.
Engagement with the California-China Climate Institute and XBRL for China financial markets

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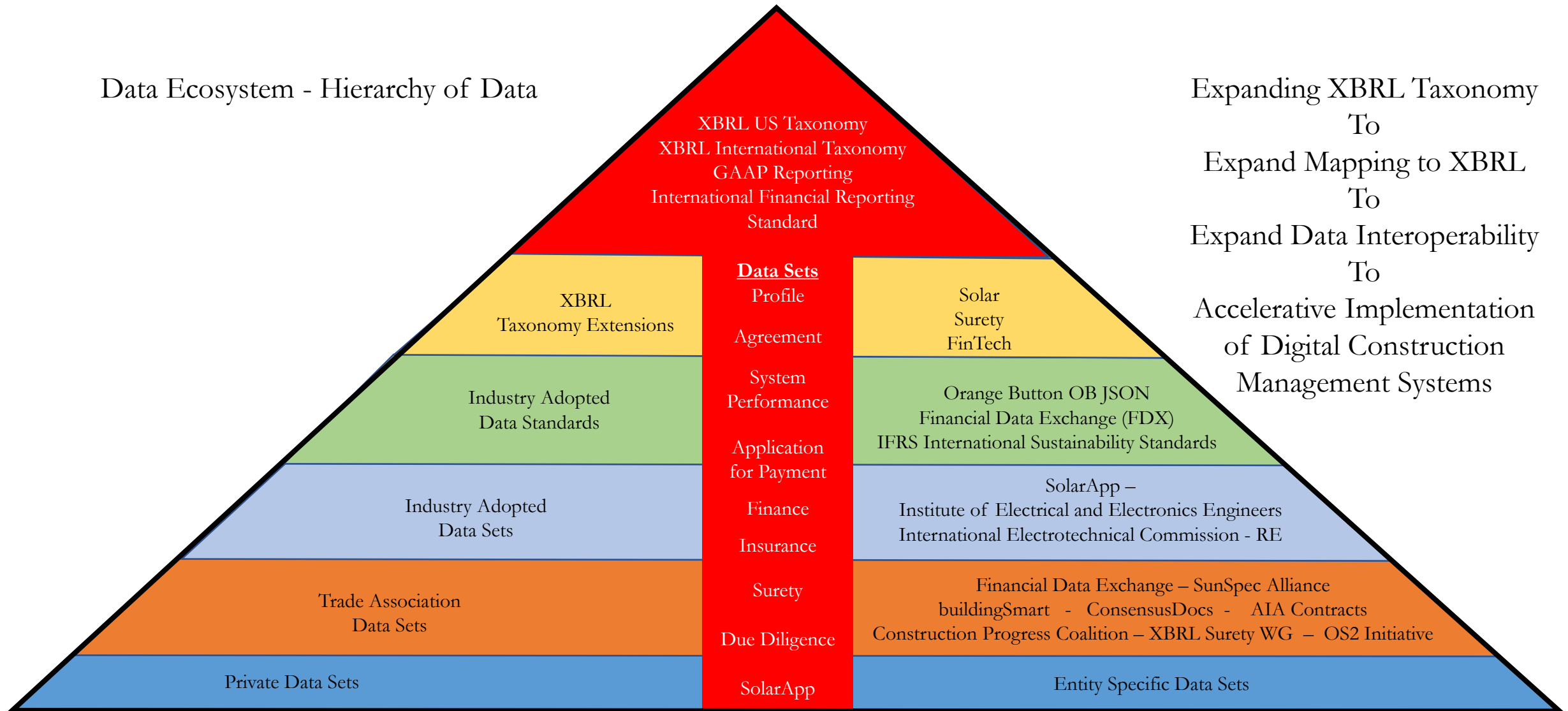
Unleashing the Power of Data Standardization

Summary

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Data Ecosystem - Hierarchy of Data

Expanding XBRL Taxonomy
To
Expand Mapping to XBRL
To
Expand Data Interoperability
To
Accelerative Implementation
of Digital Construction
Management Systems

XBRL US Taxonomy
XBRL International Taxonomy
GAAP Reporting
International Financial Reporting
Standard

Data Sets
Profile

XBRL
Taxonomy Extensions

Solar
Surety
FinTech

Agreement

System
Performance

Industry Adopted
Data Standards

Orange Button OB JSON
Financial Data Exchange (FDX)
IFRS International Sustainability Standards

Application
for Payment

Finance

Industry Adopted
Data Sets

SolarApp –
Institute of Electrical and Electronics Engineers
International Electrotechnical Commission - RE

Insurance

Surety

Trade Association
Data Sets

Financial Data Exchange – SunSpec Alliance
buildingSmart - ConsensusDocs - AIA Contracts
Construction Progress Coalition – XBRL Surety WG – OS2 Initiative

Due Diligence

Private Data Sets

SolarApp

Entity Specific Data Sets

Source of Data Standard

Mapping
Data Sets

Examples of Data Sets

Enhancing Interoperability and Data Architecture of Systems Concept - Unleashing the Power of Data Standardization

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Unleashing the Power of Data Standardization

Summary

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization
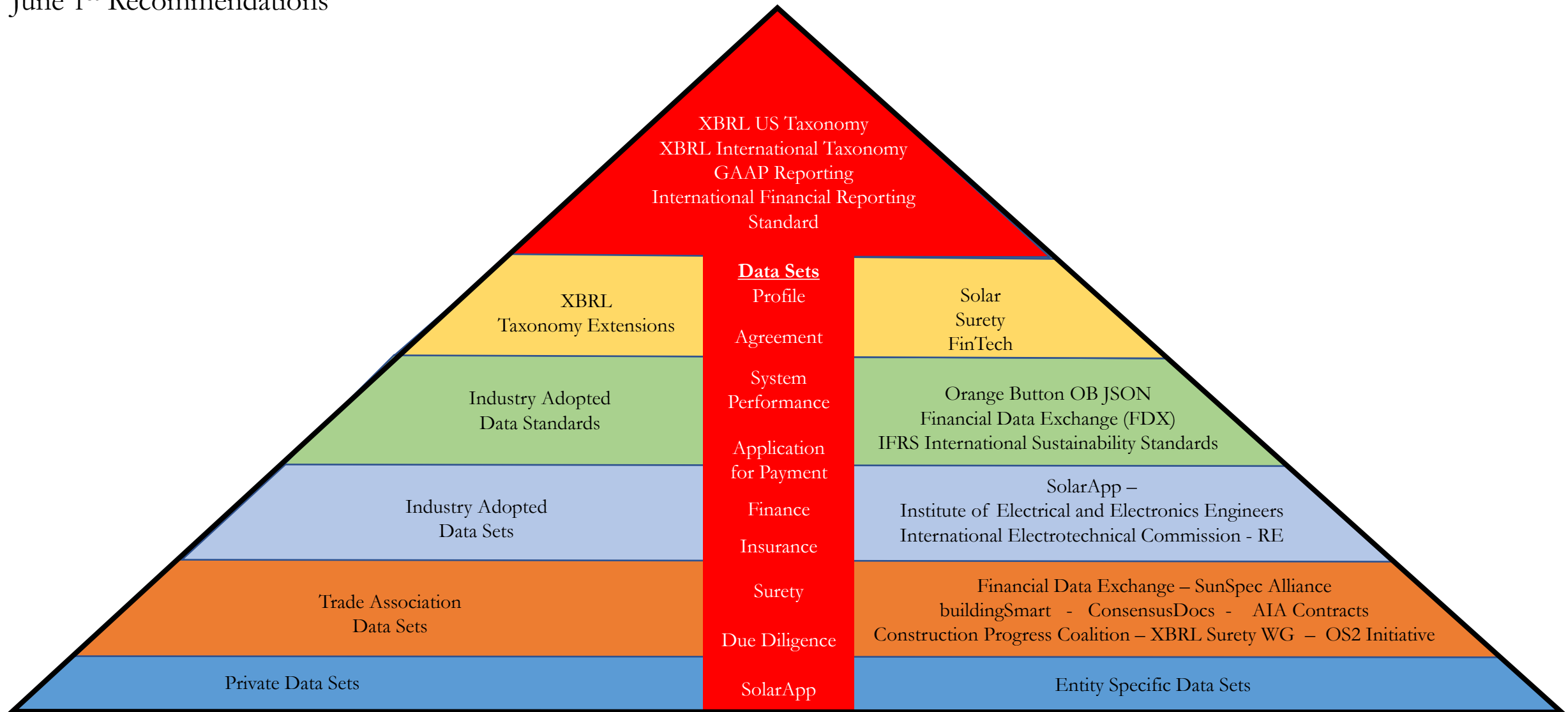
Recommendations Previously Submitted to DOE

June 1, 2022 recommendations to the DOE

1. A cyber response plan to promote secure and reliable data exchange
   a. Utility Scale – Covering utility scale generation, transmission and grid resiliency
   b. Commercial – Providing businesses with polices and procures that enable risk management and insurance.
   c. Residential - Providing homeowners with clear and simple guidelines to protect their energy systems.

2. Expand the XBRL taxonomy and JSON to incorporate Orange Button utilized data sets recorded and validated on blockchain
   a. Project profiles for procurement and permitting.
   b. Company profiles for efficient data exchange.
   c. Finance, Insurance and Surety Profiles
   d. Energy Monthly Operating Reports
   e. Construction Progress Reports and Payments

3. Implement
   a. Expand SBA XBRL functionality
   b. Implement smart contracts and blockchain that enhance governance and integrate with finance, insurance and surety.
   c. Accept digital surety bonds with online bond validation by surety industry platform and/or company URL on Treasury list of acceptable sureties T-List
   d. Provide digital standardized periodic (weekly / monthly) project information to all project stakeholders.

4. Engage with Next Generation Innovation
   Engage with the Orange Button collaboration on the "Any City" Model Digital Ecosystem for Community Resiliency for insights towards compliance with the Financial Data Transparency Act.

Enhancing Interoperability and Data Architecture of Systems
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XBRL US Taxonomy
XBRL International Taxonomy
GAAP Reporting
International Financial Reporting
Standard

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XBRL
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Industry Adopted
Data Standards

Orange Button OB JSON
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Trade Association
Data Sets

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buildingSmart - ConsensusDocs - AIA Contracts
Construction Progress Coalition – XBRL Surety WG – OS2 Initiative

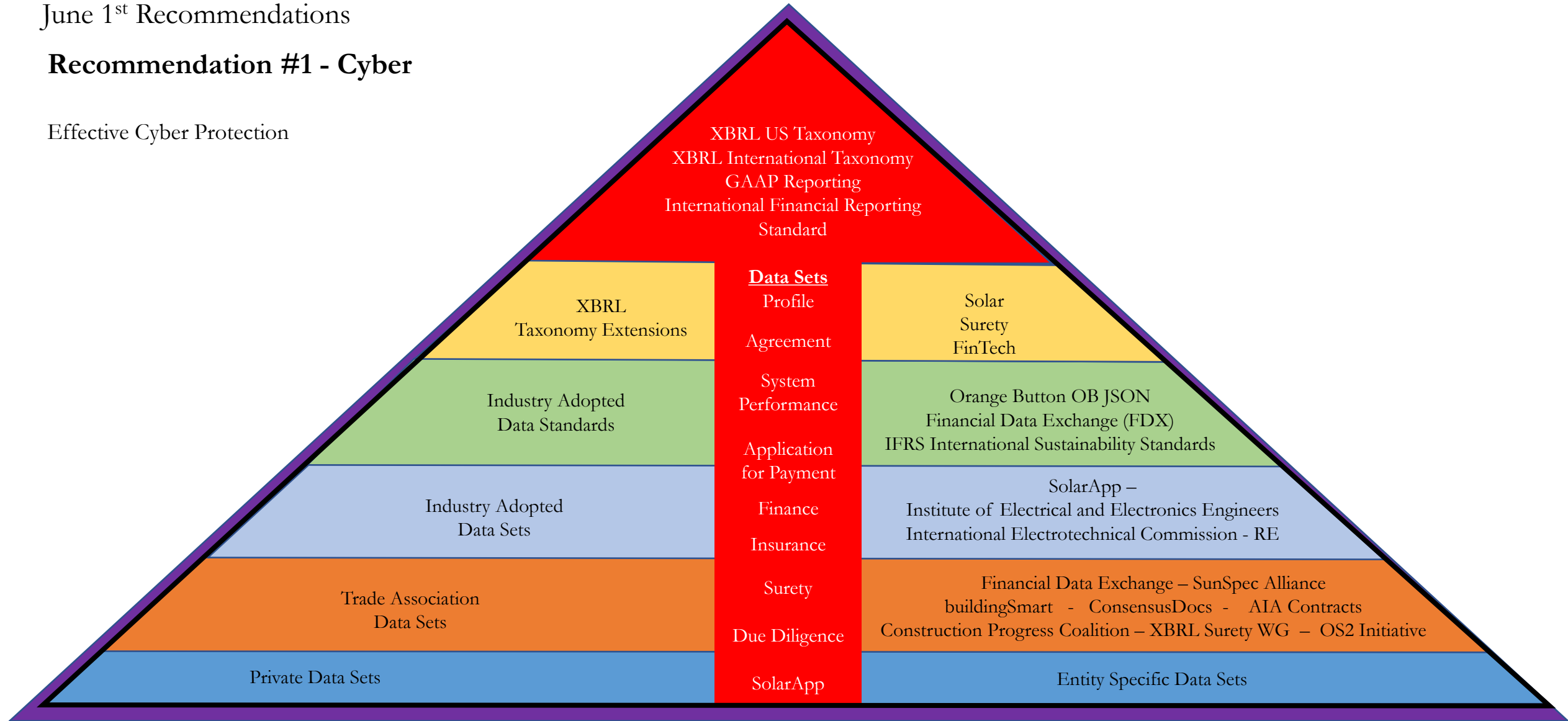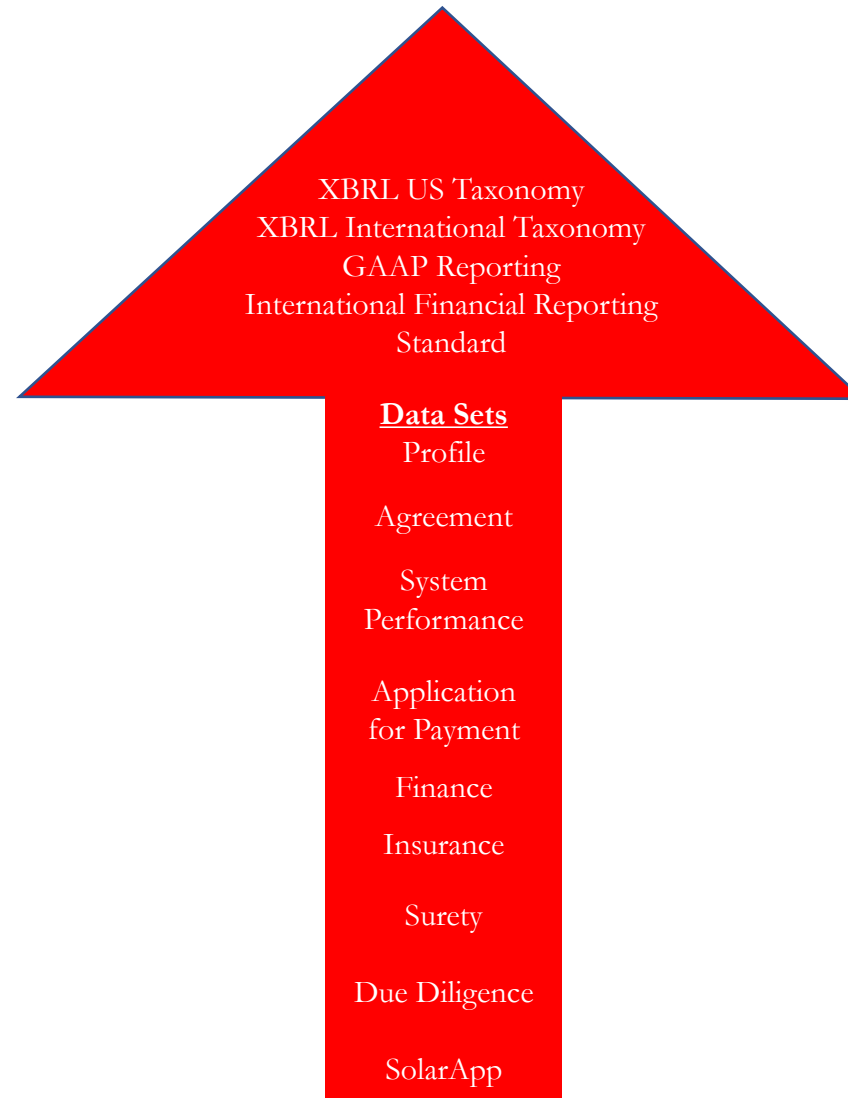Private Data Sets

Entity Specific Data Sets

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

June 1st Recommendations

Recommendation #1 - Cyber

Effective Cyber Protection

XBRL US Taxonomy
XBRL International Taxonomy
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IFRS International Sustainability Standards

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Construction Progress Coalition – XBRL Surety WG – OS2 Initiative

Due Diligence

Private Data Sets

SolarApp

Entity Specific Data Sets

Enhancing Interoperability and Data Architecture of Systems Concept - Unleashing the Power of Data Standardization

June 1st Recommendations

Recommendation #2 – Codify

Expand the XBRL taxonomy, FDX and JSON to incorporate Orange Button utilized data sets recorded and validated on blockchain
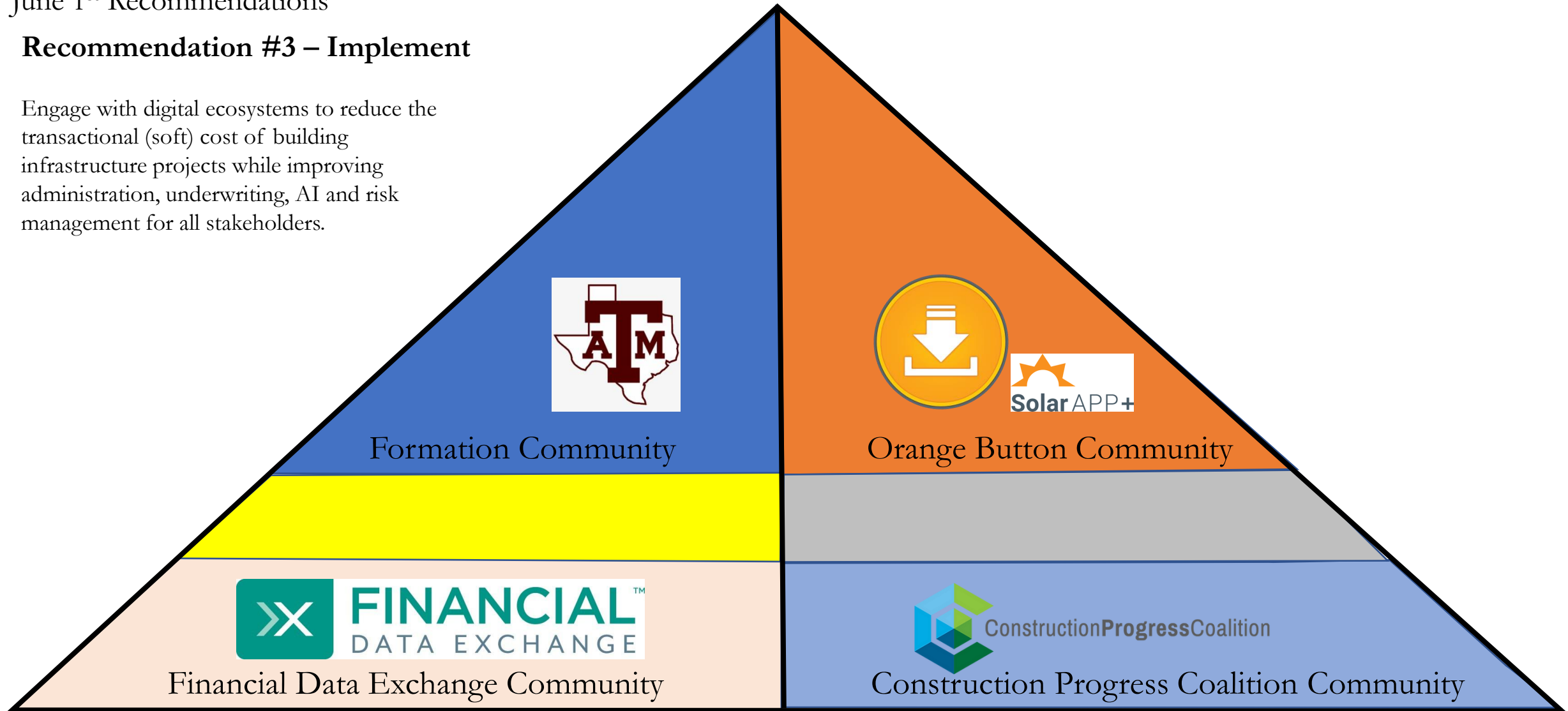
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Enhancing Interoperability and Data Architecture of Systems Concept - Unleashing the Power of Data Standardization

June 1st Recommendations

Recommendation #3 – Implement

Engage with digital ecosystems to reduce the transactional (soft) cost of building infrastructure projects while improving administration, underwriting, AI and risk management for all stakeholders.
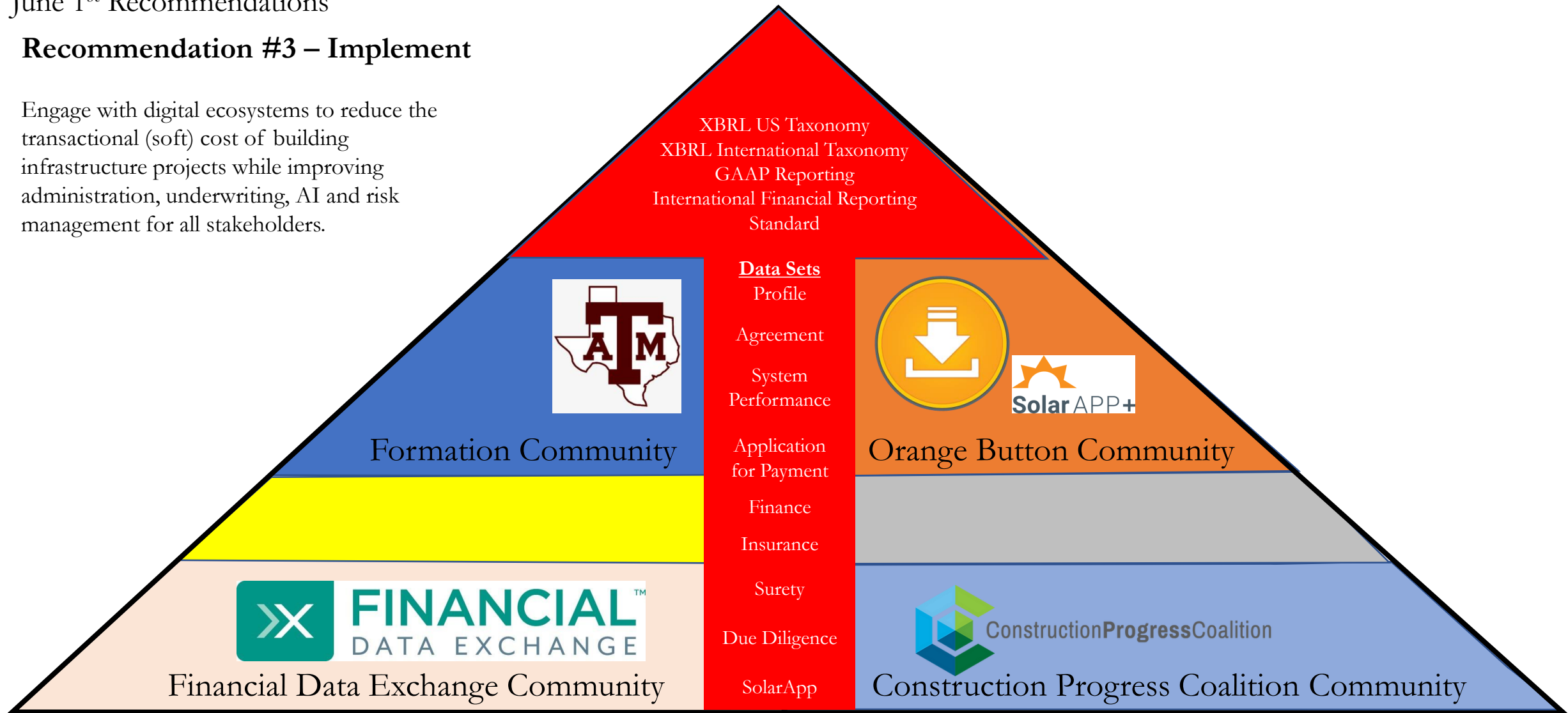
Formation Community

Orange Button Community

Financial Data Exchange Community

Construction Progress Coalition Community

Enhancing Interoperability and Data Architecture of Systems
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Enhancing Interoperability and Data Architecture of Systems
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June 1st Recommendations

Recommendation #4

Engage with Next Generation Innovation

Engage with the Orange Button collaboration on the "Any City" Model Digital Ecosystem for Community Resiliency for insights towards compliance with the Financial Data Transparency Act
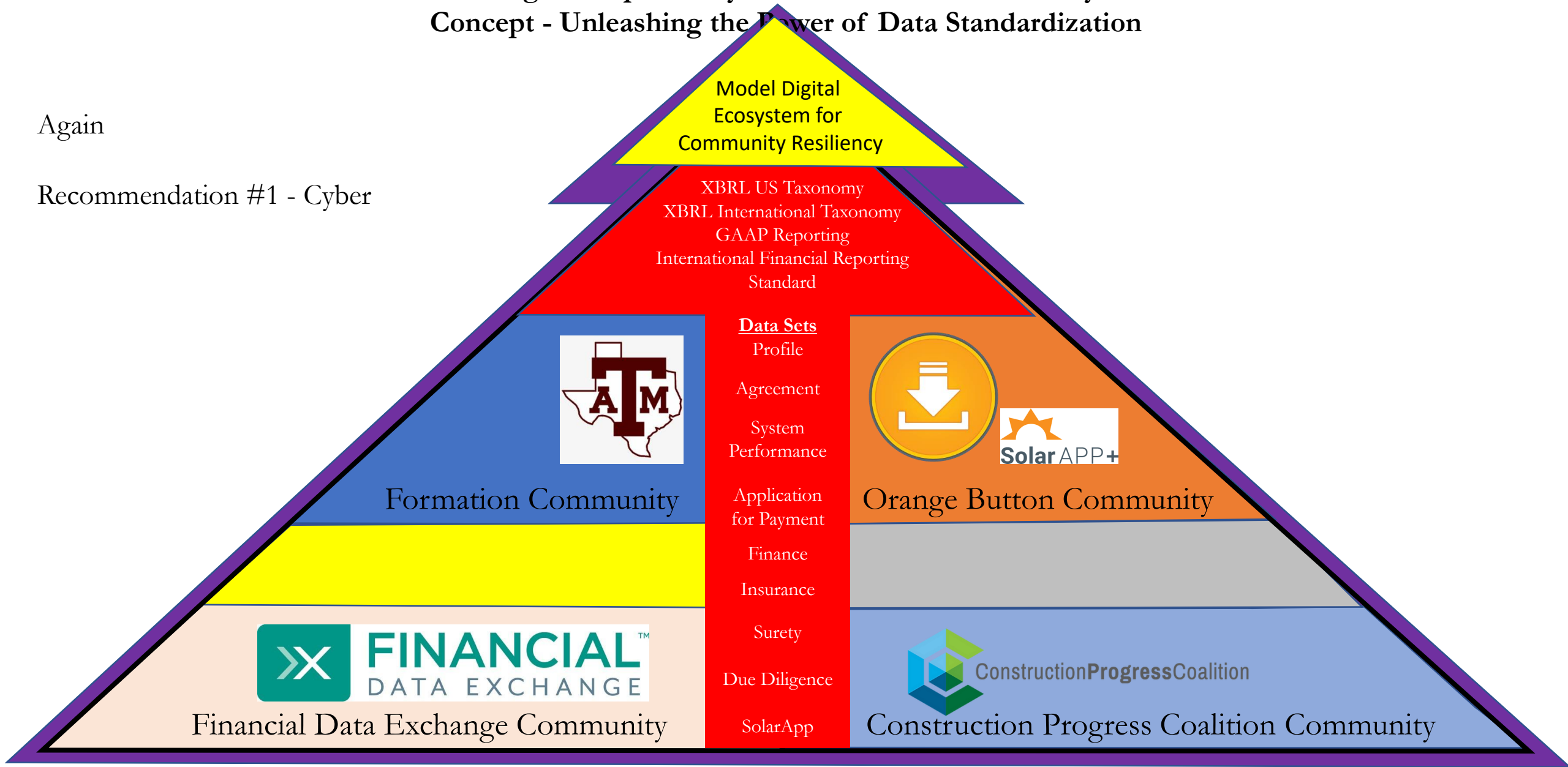
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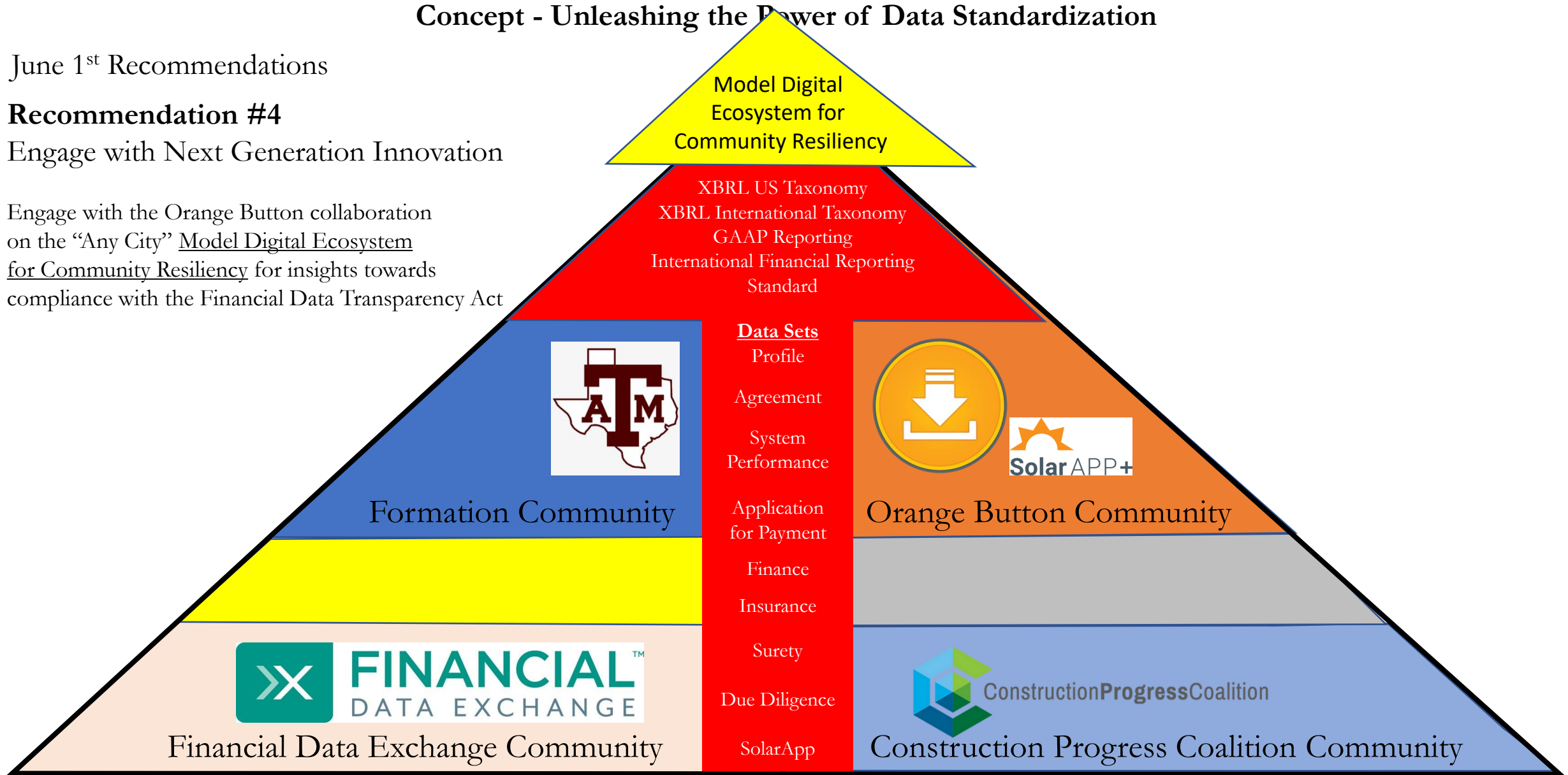
Enhancing Interoperability and Data Architecture of Systems
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Again

Recommendation #1 - Cyber

Enhancing Interoperability and Data Architecture of Systems
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Expanding XBRL Taxonomy, FDX, CDX and JSON

Unleashing the Power of Data Standardization

Summary

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Recommendations Previously Submitted to DOE

November 18, 2022 Recommendations

Adopt the recommendations outlined in the June 1st submission to the DOE RFI for "Formula Grants to States and Indian Tribes for Preventing Outages and Enhancing the Resilience of the Electric Grid"

Support the non-traditional grant request of September 25th to fund:
   a. $2M for the continued expansion of XBRL
   b. $30M for the proposed Model Digital Ecosystem for Community Resiliency.
            Proposal attached as an addendum.

Expand the Orange Button taxonomies (both XBRL and OpenAPI implementations) to enhance interoperability with existing IECRE* and IEEE** solar system performance data sets

Leverage SolarApp data sets for residential permit data. An Orange Button compliant interface for SolarApp is in development.

Leverage DATA Act 2.0 to align government and private data reporting utilizing the XBRL taxonomy and industry recognized data standards.

Engage with trade association initiatives like OS2 to establish data interoperability and new approaches to infrastructure construction based on capabilities enabled by standardized data.

* IECRE 61724 (UL)
IEC System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications

** IEEE 1526-2020 - Testing the Performance of Stand-Alone Photovoltaic Systems

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Summary

**Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization**

Concept:
Orange Button

Enhancing Interoperability and Data
Architecture of Systems

Funding to support development of OB models
- Product registry
- Operating report
- Design models
- Etc.

Orange Button Community

Individual but Collaborative – Independent but Integrated

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Concept:
Formation Initiative at Texas A&M

Enhancing Interoperability and Data
Architecture of Systems

Funding to support development of Smart Contracts,
Blockchain and development of "Communities"

Pilot Projects
- Model Digital Ecosystem for Community Resiliency
- Microsoft
- EarthGrid – Texas Projects
- TBD

Formation Community

Individual but Collaborative – Independent but Integrated

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Concept:

Enhancing Interoperability and Data
Architecture of Systems

Pilot Projects
- Model Digital Ecosystem for Community Resiliency
- TBD

Open for Collaboration

Individual but Collaborative – Independent but Integrated

Concept:

Enhancing Interoperability and Data
Architecture of Systems

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Individual but Collaborative – Independent but Integrated

Concept:
Financial Data Exchange

Enhancing Interoperability and Data
Architecture of Systems

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Pilot Projects
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Financial Data Exchange Community

Individual but Collaborative – Independent but Integrated

Concept:
Construction Progress Coalition

Enhancing Interoperability and Data
Architecture of Systems

Funding to support development of CDX

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- TBD

ConstructionProgressCoalition

Construction Progress Coalition Community

Individual but Collaborative – Independent but Integrated

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Concept:
Expand XBRL Taxonomy, FDX, CDX and JSON

Enhancing Interoperability
and Data Architecture of Systems

Funding to support Financial data exchange, Construction Progress Coalition ,SunSpec Alliance and XBRL US to undertake the identification of data set elements and submitted for review comment process for expanding the XBRL Taxonomy, CDX, FDX and JSON.
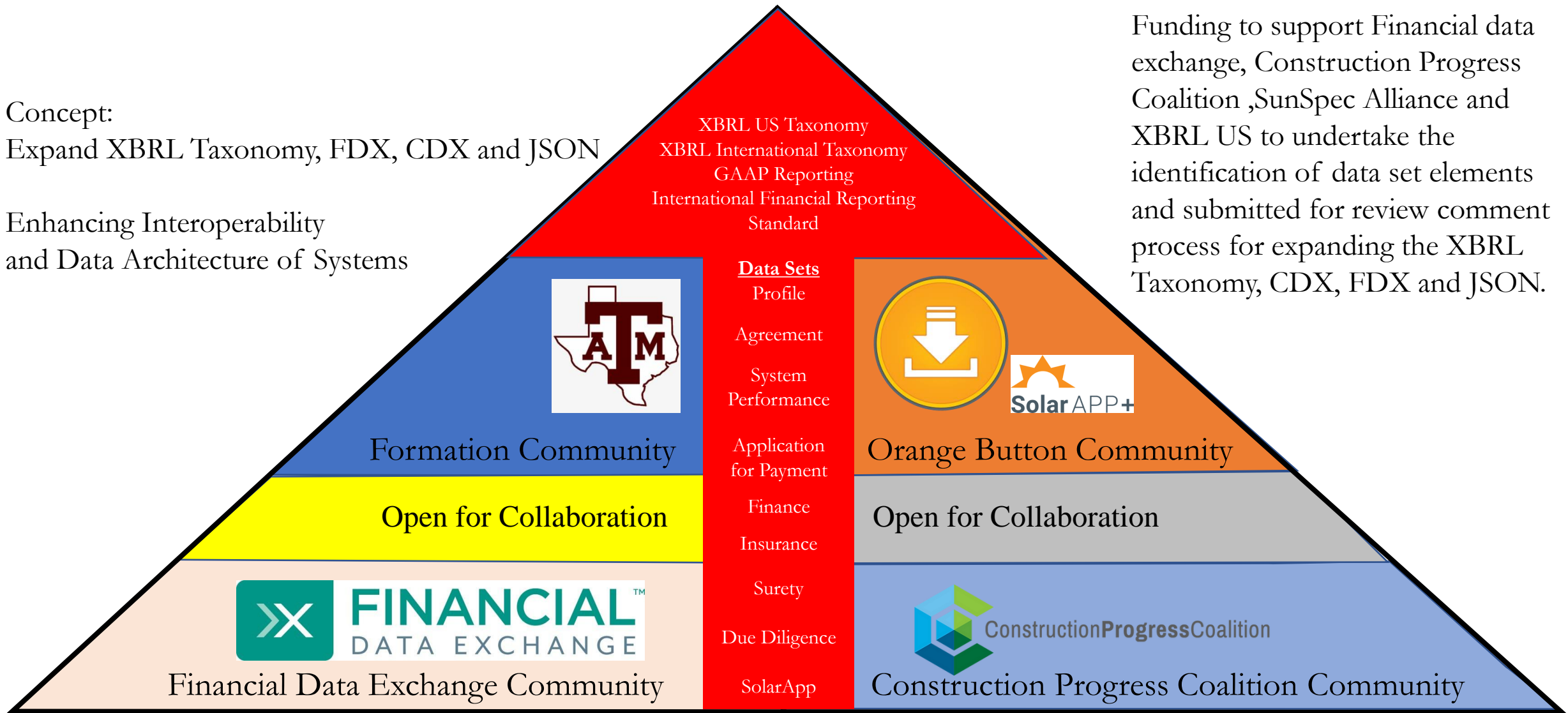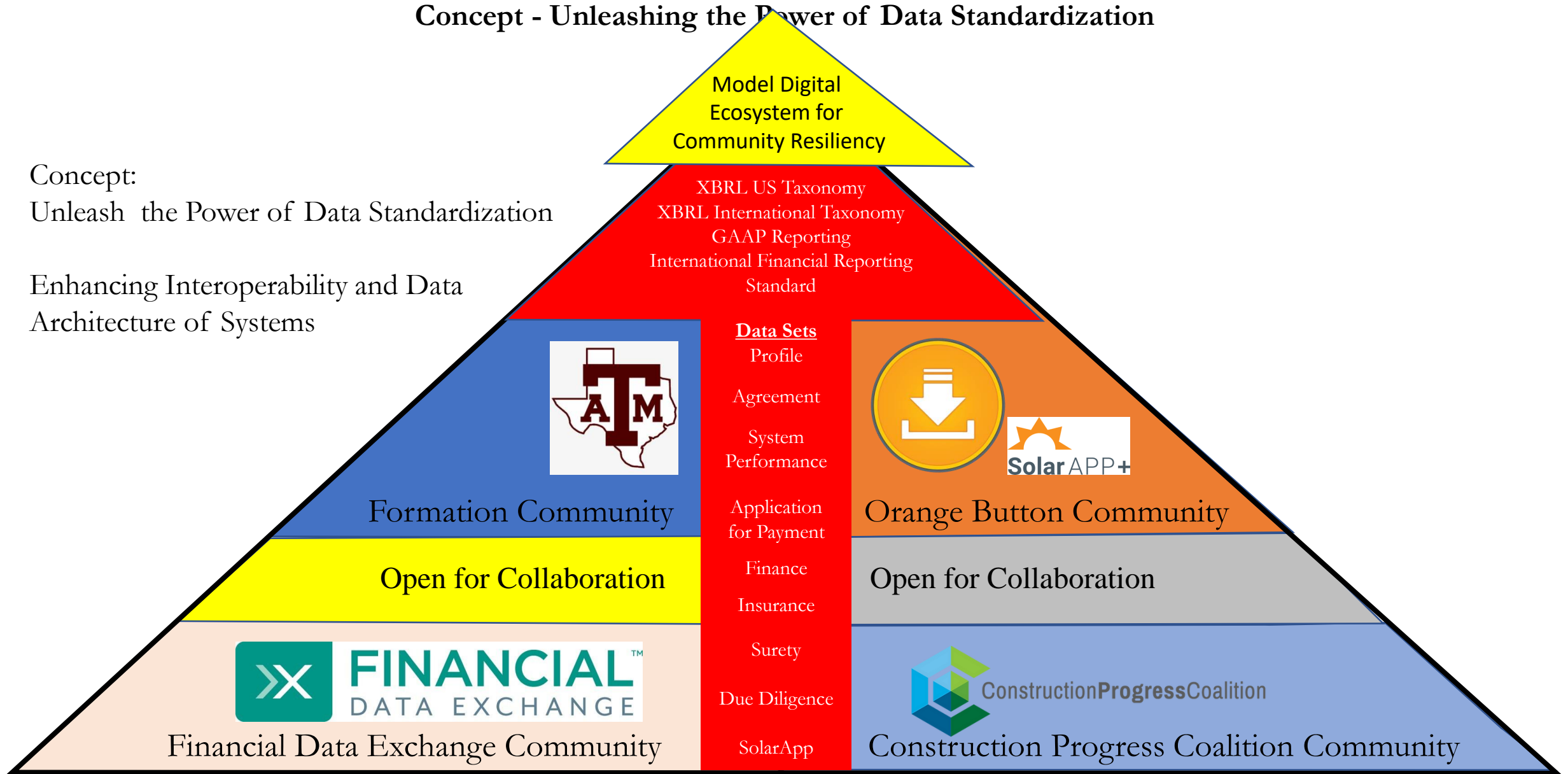
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SolarApp

Formation Community

Open for Collaboration

FINANCIAL DATA EXCHANGE

Financial Data Exchange Community

Orange Button Community

SolarAPP+

Open for Collaboration

ConstructionProgressCoalition

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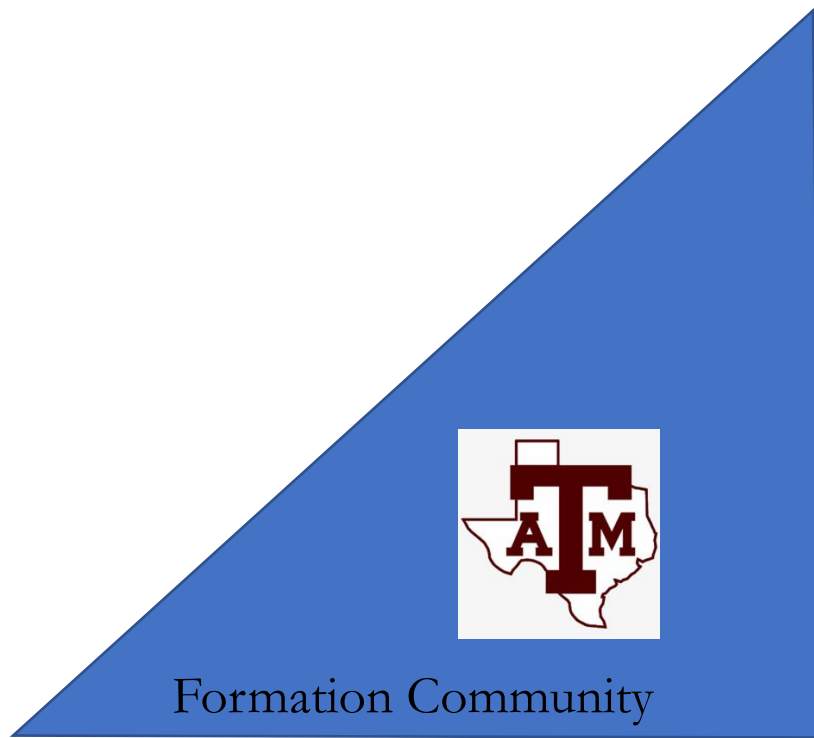
Concept:
Unleash the Power of Data Standardization

Enhancing Interoperability and Data
Architecture of Systems

Model Digital
Ecosystem for
Community Resiliency

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GAAP Reporting
International Financial Reporting
Standard

Data Sets
Profile

Agreement

System
Performance

Application
for Payment

Finance

Insurance

Surety

Due Diligence

SolarApp

Formation Community

Open for Collaboration

FINANCIAL DATA EXCHANGE

Financial Data Exchange Community

Orange Button Community

Open for Collaboration

ConstructionProgressCoalition

Construction Progress Coalition Community

Individual but Collaborative – Independent but Integrated

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Model Digital Ecosystem for Community Resiliency

XBRL US Taxonomy
XBRL International Taxonomy
GAAP Reporting
International Financial Reporting Standard

Formation Community

Orange Button Community

SolarAPP+

Individual but Collaborative – Independent but Integrated

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Open for Collaboration

FINANCIAL DATA EXCHANGE™

ConstructionProgressCoalition

Financial Data Exchange Community

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Enhancing Interoperability and Data Architecture of Systems Concept - Unleashing the Power of Data Standardization

Submission to DOE

UN Sustainable Development Goals

Hierarchy of Data

June 1st Recommendations Submitted to DOE

November 18th Recommendations Submitted to DOE

Concepts

Orange Button / SolarApp

Formation Initiative at Texas A&M

Financial Data Exchange - FDX

Construction Progress Coalition - CDX

Expanding XBRL Taxonomy, FDX, CDX and JSON

Unleashing the Power of Data Standardization

Summary

Enhancing Interoperability and Data Architecture of Systems
Concept - Unleashing the Power of Data Standardization

Summary

Enhancing Interoperability and Data Architecture of Systems will require data interoperability between multiple systems enabled by data standards. XBRL will not be the data standard for every stakeholder or industry segment, but the XBRL taxonomy can provide adopted data terms, definitions and structure that any system can to map to. The data sets will provide every stakeholder with the data elements to exchange for the most common data exchange requirements.

Each of the collaborators and every stakeholder has specific needs to their industry or activity that is best served by trade associations and the marketplace, and each has independent value

When there is synergy between industry silos towards an open standards based digital ecosystem that enables any system to securely and reliability exchange data, the sum of the whole is far greater than the sum of the parts

Enhancing Interoperability and Data Architecture of Systems will require that synergy

This concept brings the potential of that synergy to reality.

Further Information

Submissions to DOE

Formula Grants to States and Indian Tribes for Preventing Outages and Enhancing the Resilience of the Electric Grid (June 1st and September 25)

DOE Funding Opportunity Announcement
November 18, 2022 - Biden-Harris Administration Announces $13 Billion To Modernize And Expand America's Power Grid
Smart Grid Grants
Fact Sheet
FedConnect: Opportunity: BIL Grid Resilience and Innovation Partnerships (GRIP)

Orange Button
SunSpec Alliance – Resources
      Orange Button Taxonomy
      Orange Button Data Element Reference
      Orange Button XBRL Taxonomy Guide
      XBRL Application Programming Interface (API)

Orange Button Taxonomy Viewer

Presentations
Orange Button Response To 2018 PG&E Request For Abstract

2018 Global Climate Action Summit

Model Digital Ecosystem for Community Resiliency

Data Harmonization Strategies: Scaling Up Solar Projects & Mitigating Financial Risks

2020 UN Great Reset Unleashing the Power of Data Standardization

Digital Ecosystem for Infrastructure Reliability - Attracting Capital and Financial Markets to Infrastructure - UC Berkeley Center for Catastrophic Risk Management

Digital 360 Summit
2022 - Digital Infrastructure Panel
      OS2 Overview at the 2022 Digital 360 Summit
2020 - New Financial Tools
2019 - New Regulations, Financial Tools, and Business Models

Energy Storage Best Practice Guide: Guidance for Project Developers, Investors, Energy Companies and Financial and Legal Professionals
Chapter 4: Technical Performance- Data Interoperability
      Appendix 1:   Chronology and Historical Resource
      Appendix 2:   Leadership and Resources
      Appendix 3:   Global Climate Action Summit Impact Event
Chapter 7: Risk Management- Surety

IIJA and IRS – Accelerating the implementation of digital construction management systems
Bentley - The U.S. Infrastructure Investment and Jobs Act: What to Expect and How to Prepare for Construction Technology Funding

Ryvit - The Infrastructure Investment & Jobs Act (IIJA) is here.

Other
Does the Architectural, Engineering, and Construction industry need a UNIVERSAL PROJECT ID?

Is Digital Project Delivery Ready to Support the Net-Zero Transition?

California AB-1223 Construction contract payments: Internet Web site posting