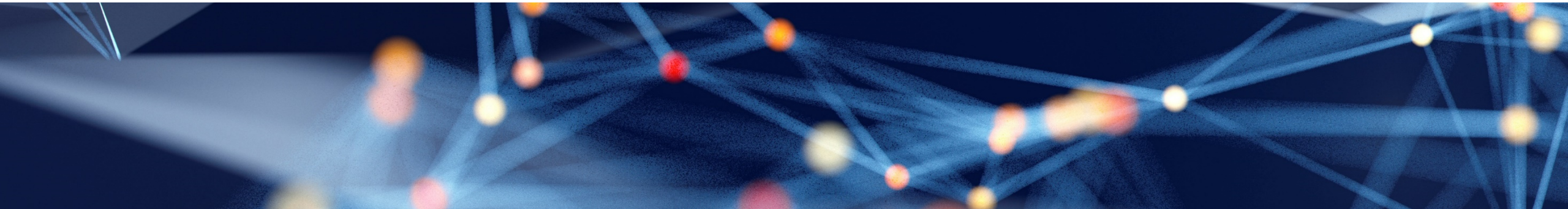
The Learner Record Index

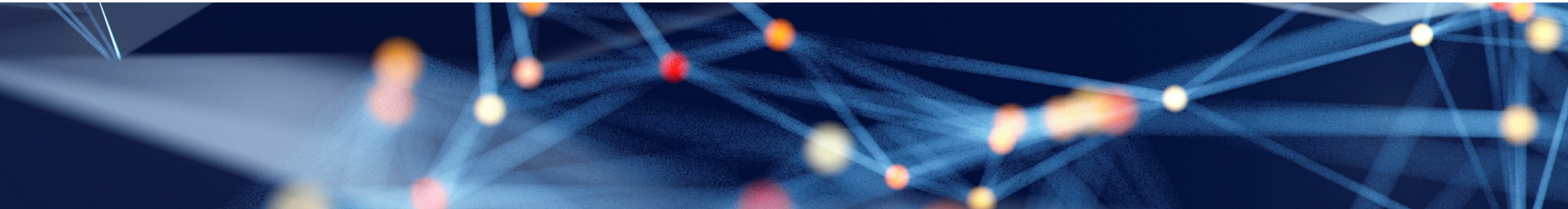
Building a better student experience *together*

What is the LRI ?

The ability to match and identify students across multiple organizations when the SS# is not a viable, comprehensive or legal solution.



What does the LRI solve?

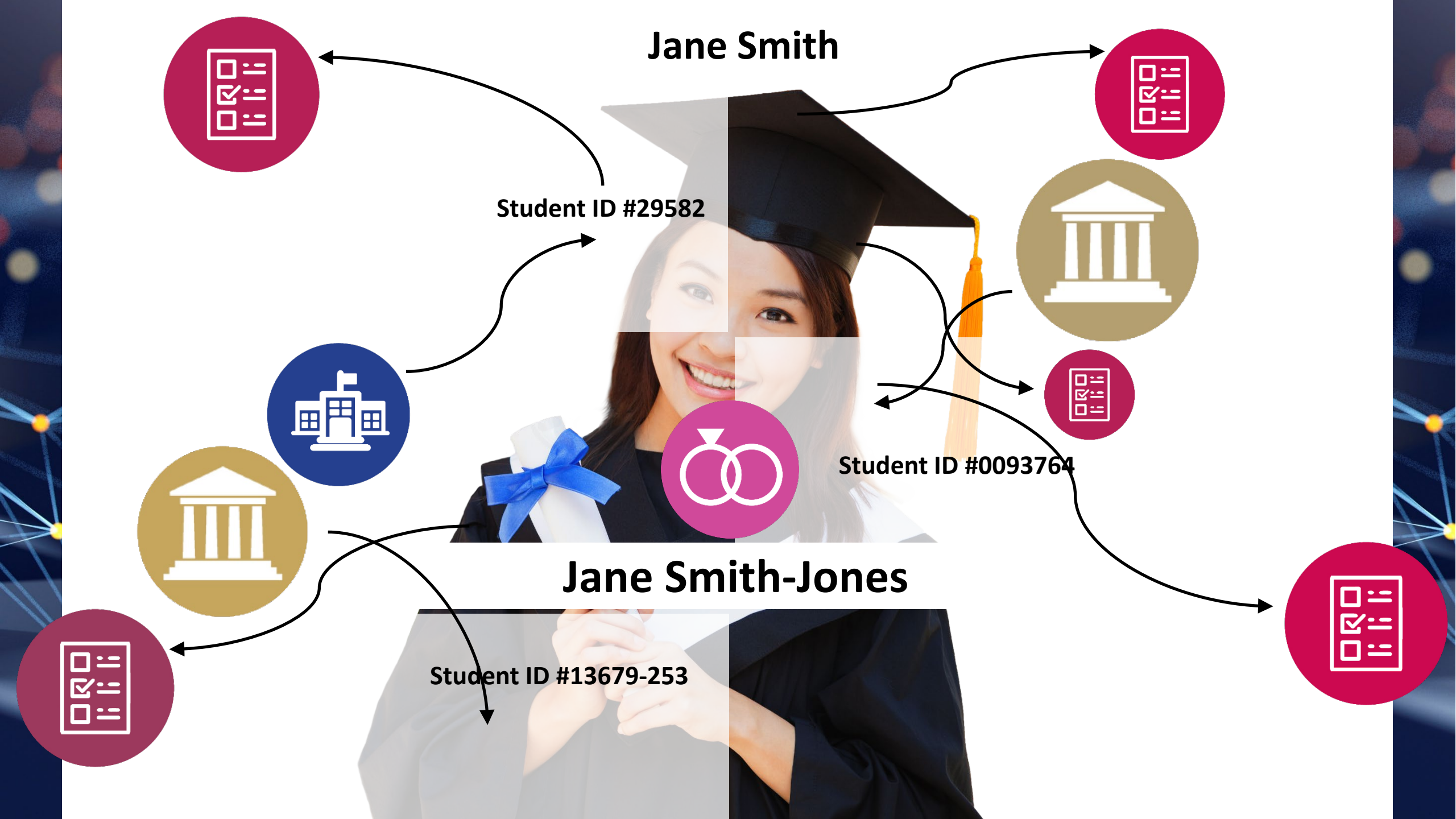


Jane Smith

Jane Smith

Jane Smith

Student ID #29582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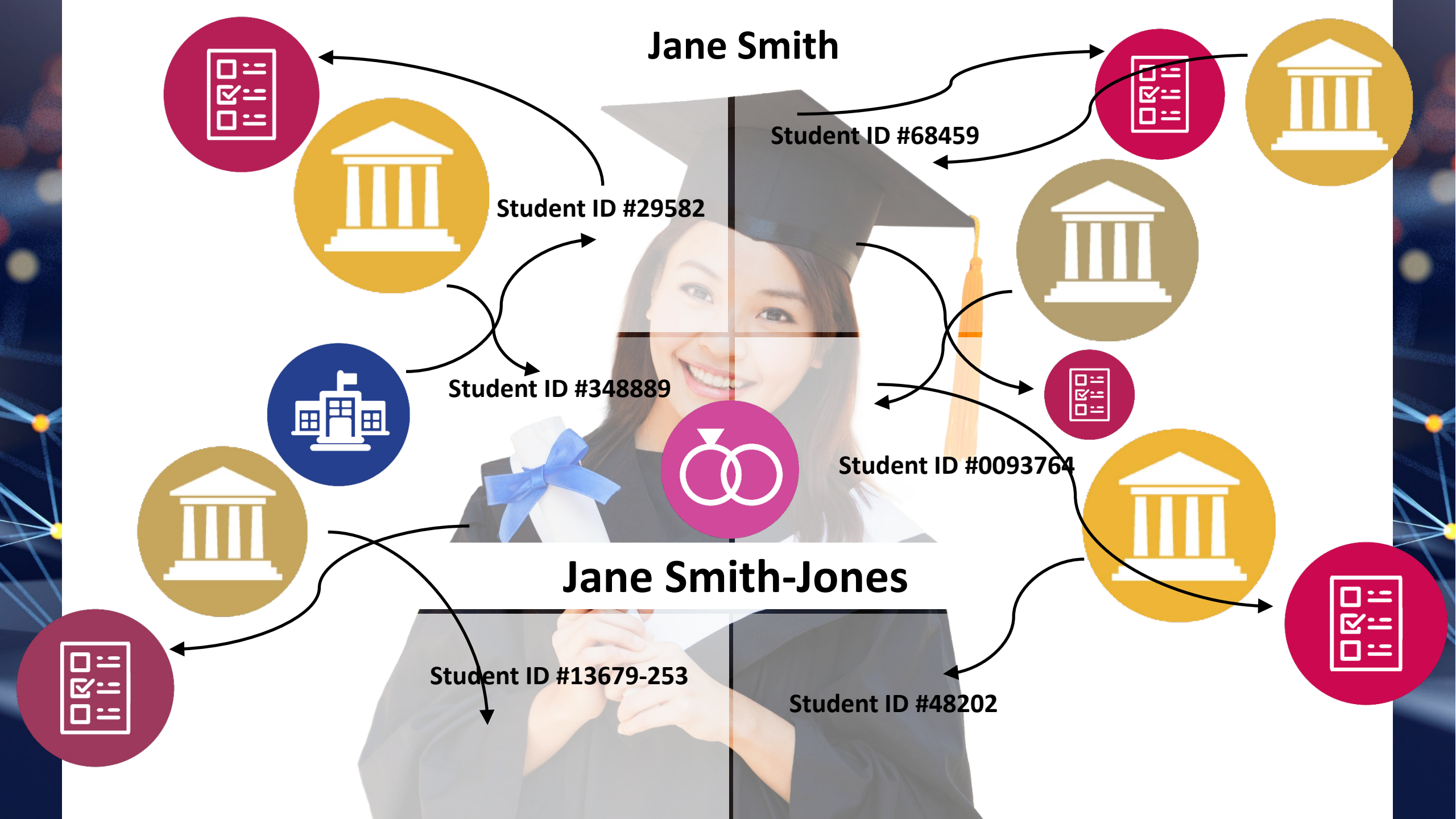
Student ID #0093764
Jane Smith-Jones
Student ID #13679-253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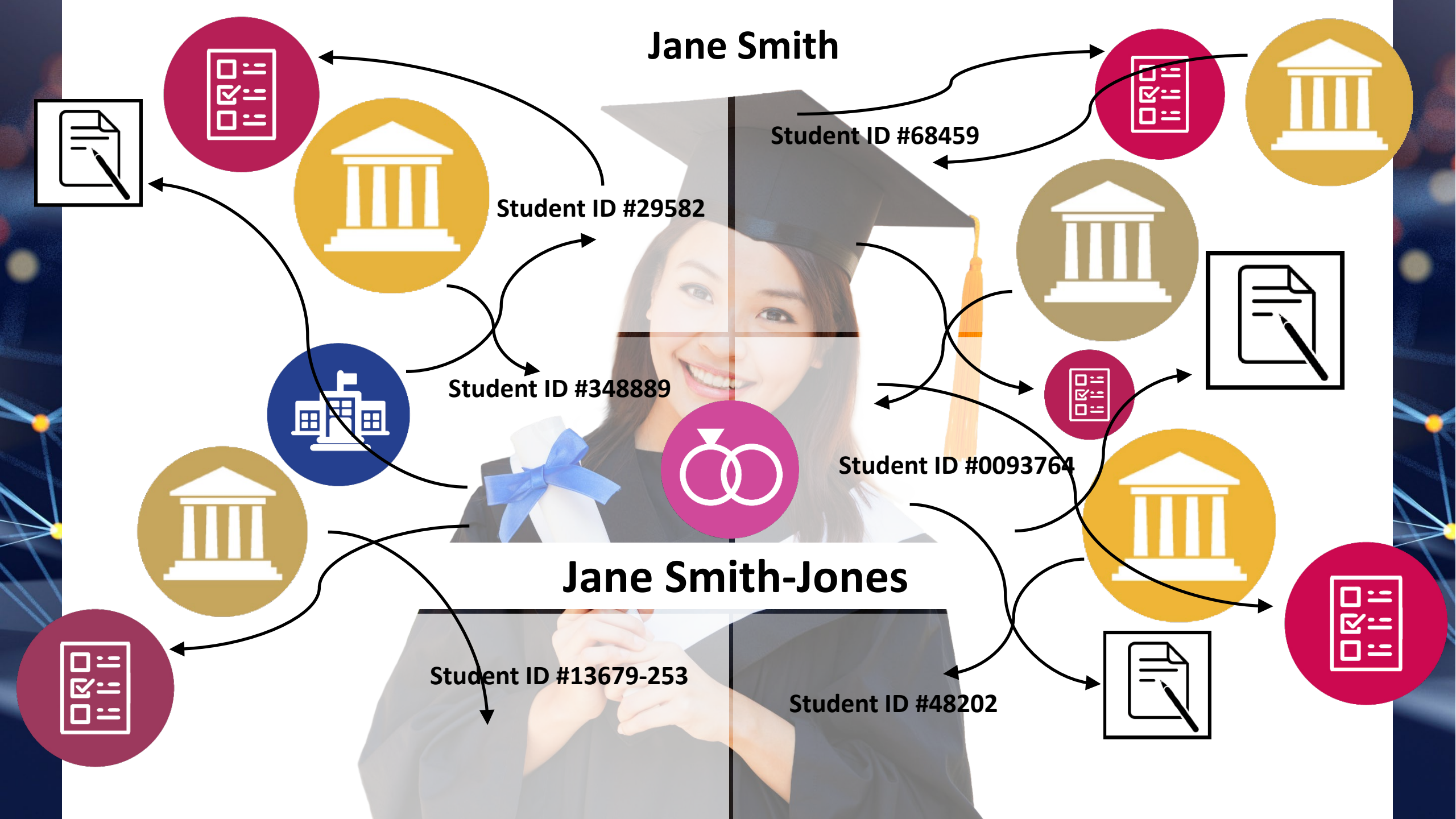
Jane Smith-Jones
Student ID #13679-253
Student ID #48202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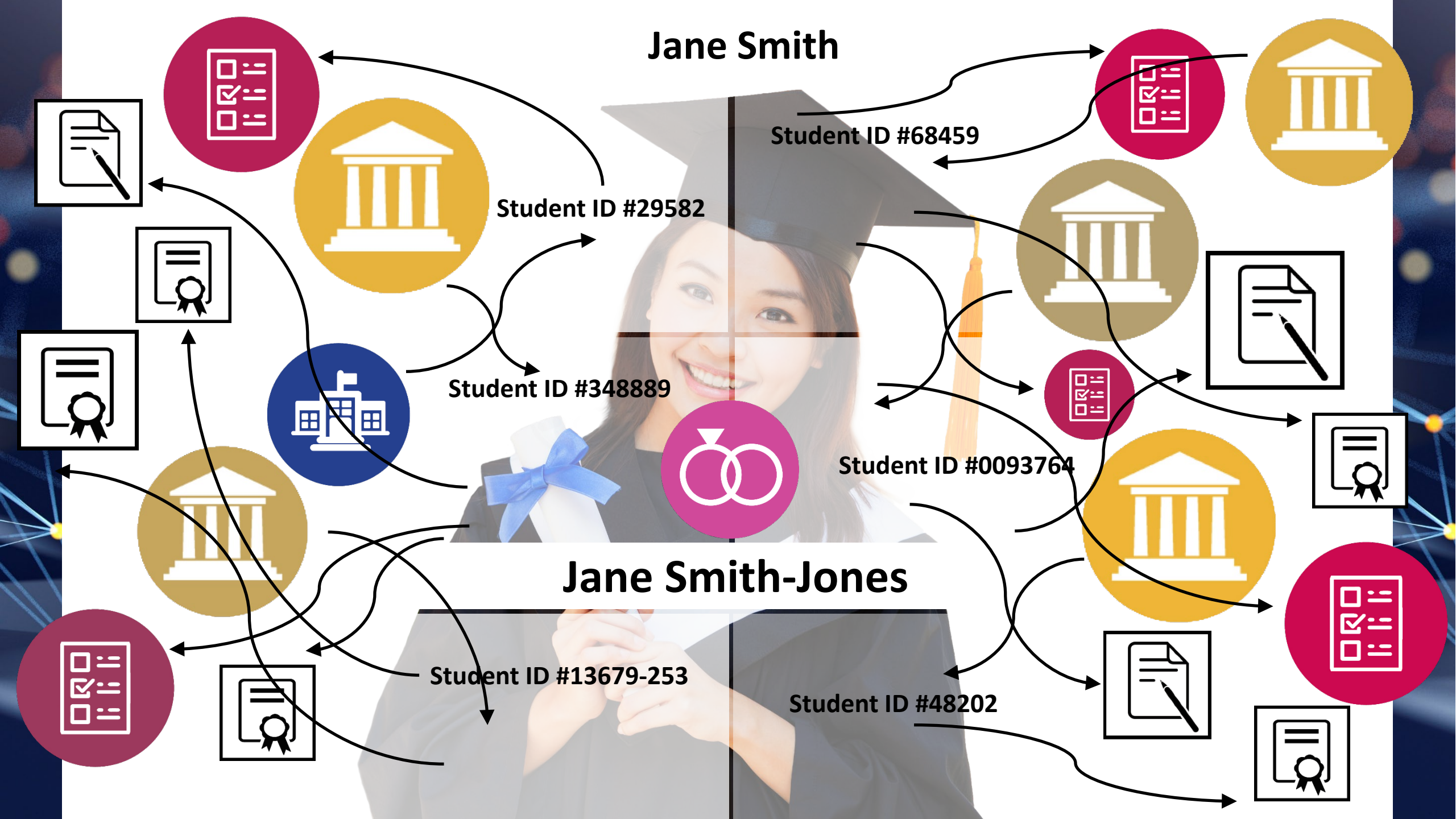
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Student ID # 29582

Student ID # 68459

Student ID # 348889

Student ID # 13679-253

Student ID # 0093764

Student ID # 48202

Jane Smith-Jones

LRI #29573345

High School

Test Agency

Index Server

University

SIS

Data Consumers

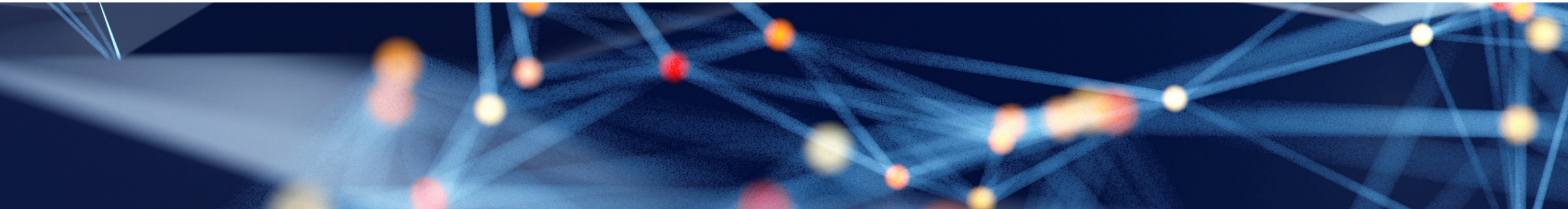
Service Providers:
Transcripts, Diplomas, etc...

Learner Personal Information

Academic Index

Academic Information with Index

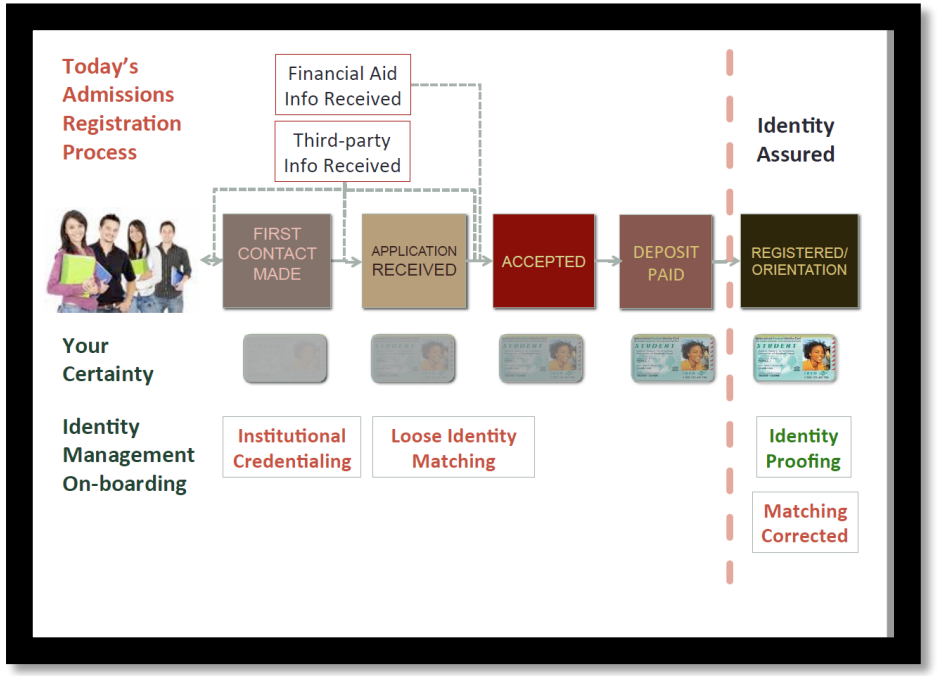
Feels like Déjà vu all over again?



Déjà vu and IdM

Suspects, Prospects and Applicants

- **Third Party Matching**
- **Student Ease of Use**
- **Identity Proofing**



Ann West - Internet2

Déjà vu and IdM
The Common Identity and Trust (CommIT) ID

Goals of CommIT (~2011 – 2015) https://spaces.at.internet2.edu/display/InCAdmissions/CommIT+Documents

- Support and Enhance Identity and Trust
- Provide matching process for electronic records for applicants and institutions
- Create a unique Student Identifier
  - do away with the last remaining vestiges of dependency on the social security number.
- Person Registry
  - Store minimum data required to support user uniqueness and password re-sets

Déjà vu and IdM
The Common Identity and Trust (CommIT) ID

Goals of CommIT (~2011 – 2015) https://spaces.at.internet2.edu/display/InCAdmissions/CommIT+Documents

- Federated Single Sign-On Solution (SSO)
  - Single set of credentials that can be used across various services
  - Only the applicant can initiate record aggregation and release
  - No third party access to data without applicant consent

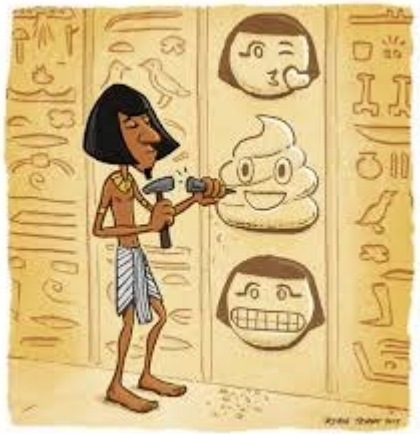
- Provide a means for Identity Proofing

- Become a sustainable shared service for IdM

Déjà vu and IdM
CommIT – Ahead of its' Time?

Factors contributing to lack of traction in HE Community (Monday morning QB)

- CommIT had to be "Inserted" into HE Application Process
  - Introduction of the SSO from variety of organizations/institutions
- Credential Management and Administration
  - e.g., "Shared Secret" management, Password reset, etc.
  - Enabling student self-sovereignty
    - Authorization and disclosure of records/credentials
- Identity Proofing
- Value Proposition to Stakeholders (Institutions)
  - Admissions/SEM professionals may not bear cost of matching
- Lack of Scale



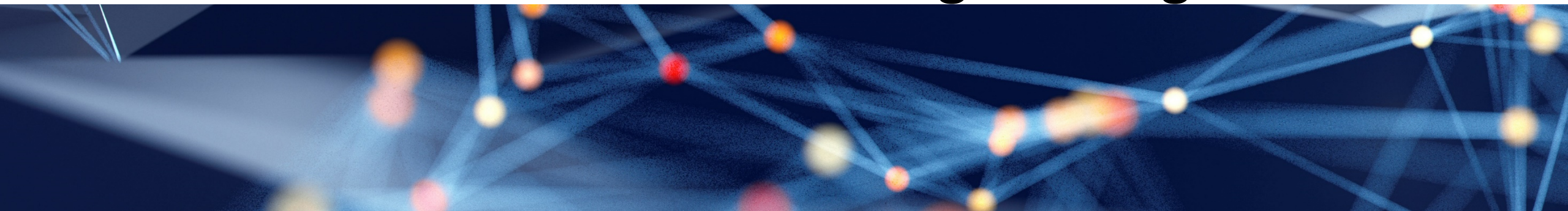
Déjà vu and IdM
LRI – Why might it be different?

Learner Record Index

- Identification NOT Authentication or Authorization
- Requires no end user intermediation
- Low Entry Bar
- Scale
- Extensibility

Data Strategy, the Education Community, and LRI

"set of choices and decisions that together, chart a high-level course of action to achieve high-level goals." (Source: Dataversity)



The Learner Record Index
Building a better learner experience *together*

Data Strategy

If we are a community that wants to build “a better learner experience together”, let’s put on ‘data glasses’ and look at what that means:

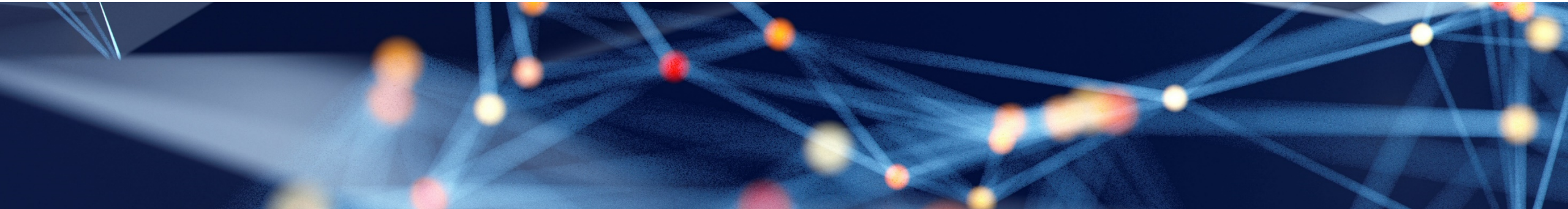
- Agreement on a shared purpose
- Governance
- Determination of the data involved
- Definitions & Lineage of the data involved
- Rules regarding usage
- Definitions of Quality and Accuracy
- Monitoring, Maintenance, and Metrics

Thinking about the Data

Consistent and defined set of identifiers and attributes that are typically slow to change, yet used across multiple processes in which learners engage:

First Name	Middle Name	Middle Initial	Last Name	Date of Birth	Student ID	Reporting Entity
Jane		J	Smith	03/20/2001	29582	Institution A
Jane	Julie		Jones		13679-253	Testing Entity
Jane			Smith Jones	03/20/2001	348889	Support Service
J	Julie		Jones		48202	Institution B
Jane		J	Jones	03/2001	C1524A	Online Provider

Approach and Architecture



Jane Smith-Jones

High School

Test Agency

LRI #29573345

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Learner Personal Information

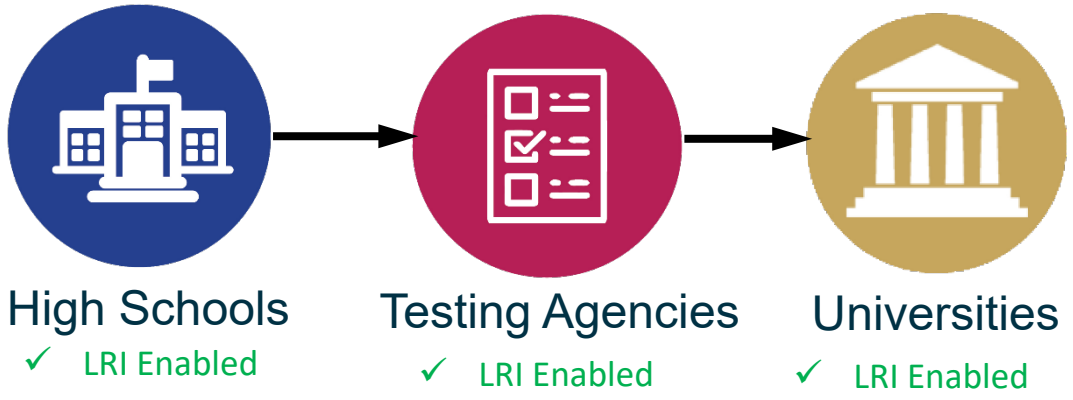
Learner Record Index

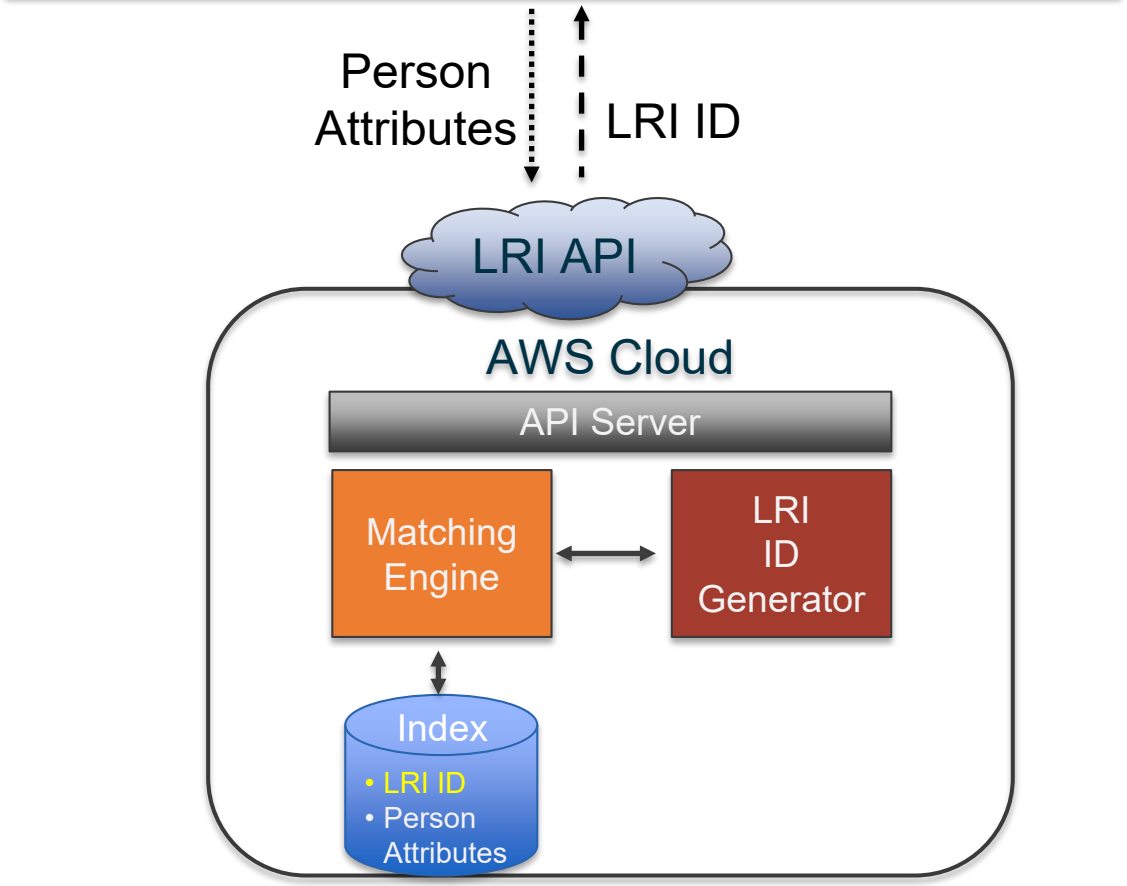
Academic Information with Index

A Closer Look

- Learner engages with a system participant
  - High School
  - Testing Agency
  - University
- Data exchange from a previous participant may contain LRI
- Otherwise, LRI is retrieved from Index Server via Lookup API
- LRI is added to system participant’s record for learner
- LRI is included in data exchanges with other participants for learner information instead of SSN or student ID
- Cycle continues when Learner engages with another participant

Jane Smith-Jones





Index Server & Lookup API

- Index Server
  - Managed, centralized LRI database to store and manage records
- Lookup API
  - Secure Web API with access restricted to system participants
  - ~20 attributes of personal information about a learner
  - Matching engine used to compare against existing records in Index Server
  - Returns either existing LRI if match found
  - Otherwise, generates and returns new LRI
- Management Interface
  - Tools for management of index records
  - Reconciliation of reported mismatched records
  - Manual attribution of matches red-flagged by system as uncertain

Applied Technologies

- Matching Engine
  - Logic to compare learner attributes against existing LRI data to locate matches
  - Based on level of match, different actions are taken
    - Beyond high threshold, match is made and LRI is returned
    - Under low threshold, no match is made and new LRI is generated with learner attributes
    - Clearinghouse enrollment reporting process will identify and resolve match discrepencies
- Cloud Hosting
  - Scalability, security and availability
  - Can be maintained as separate, isolated system

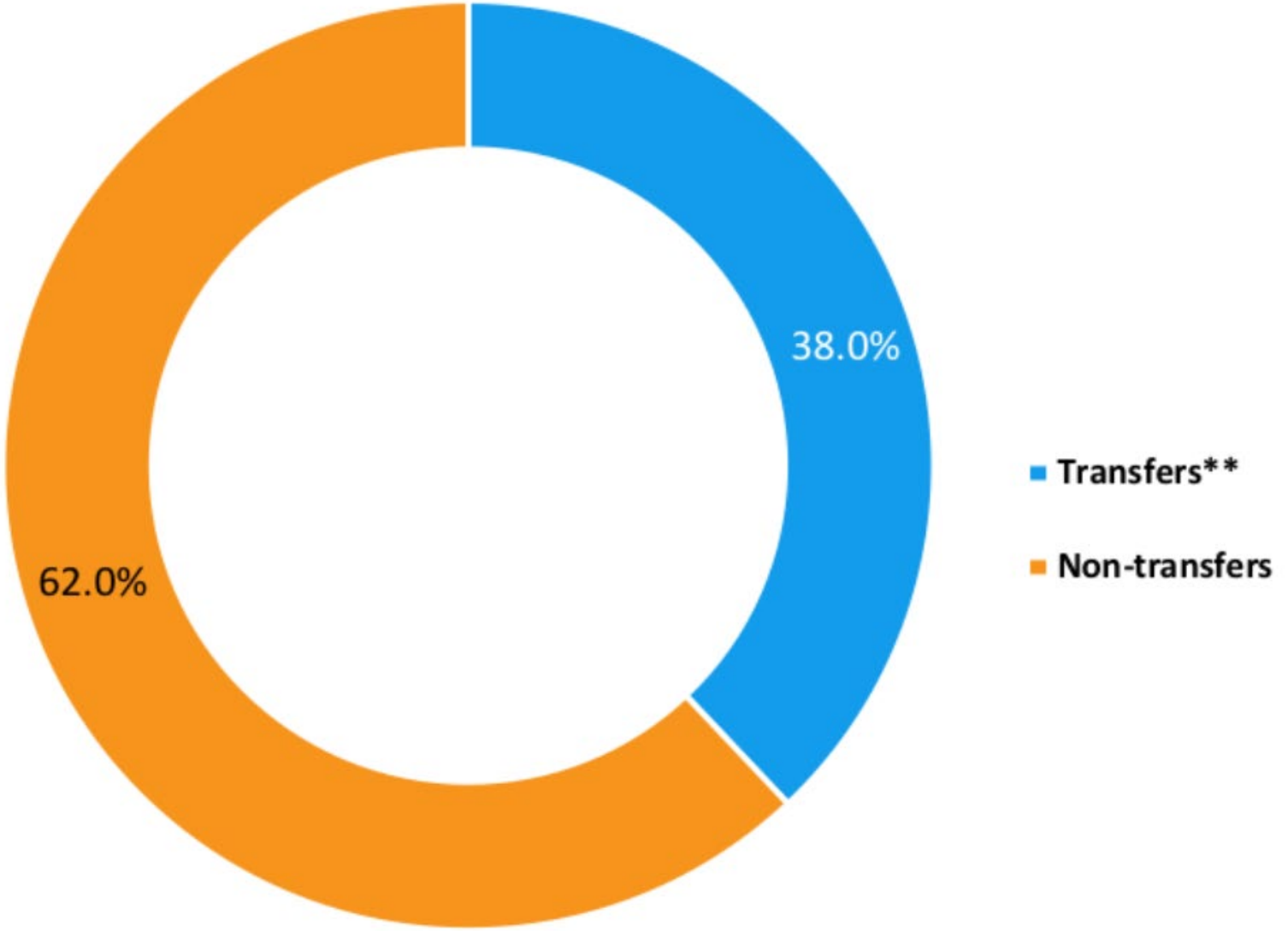
Considered Additional Technologies

- Artificial Intelligence
  - Machine Learning or Deep Learning could be utilized to improve matching results and reduce need for management of the system as database grows
- Blockchain
  - Sensitivity of PII required to operate system may make blockchain undesirable for solution
  - If only index is stored within the chain, separate database will still need to be maintained to securely store related PII off-chain
  - No real ROI for immutability or distributed ledger

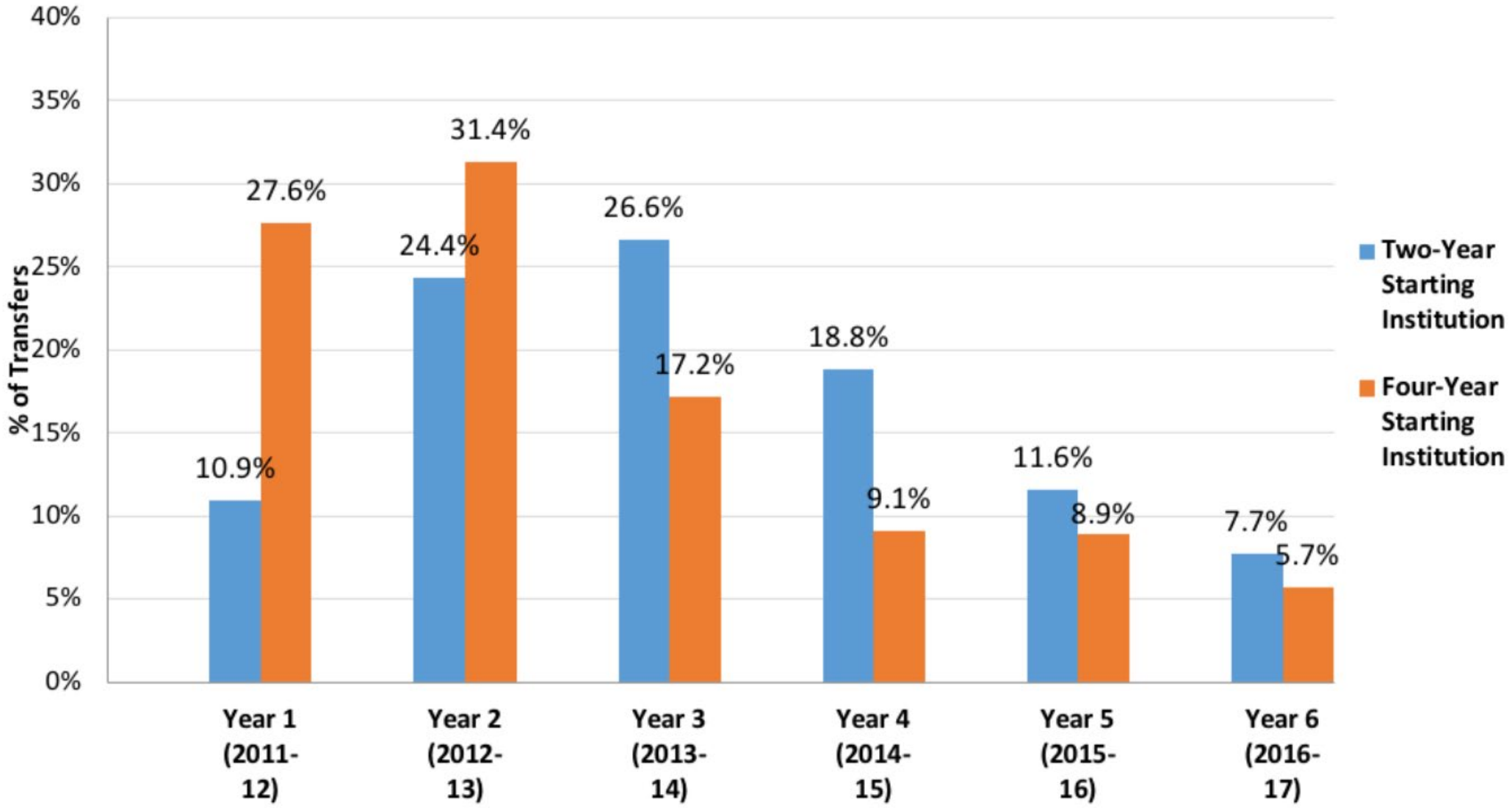
Bringing it all together

The business case for why we need to do this now could not be clearer

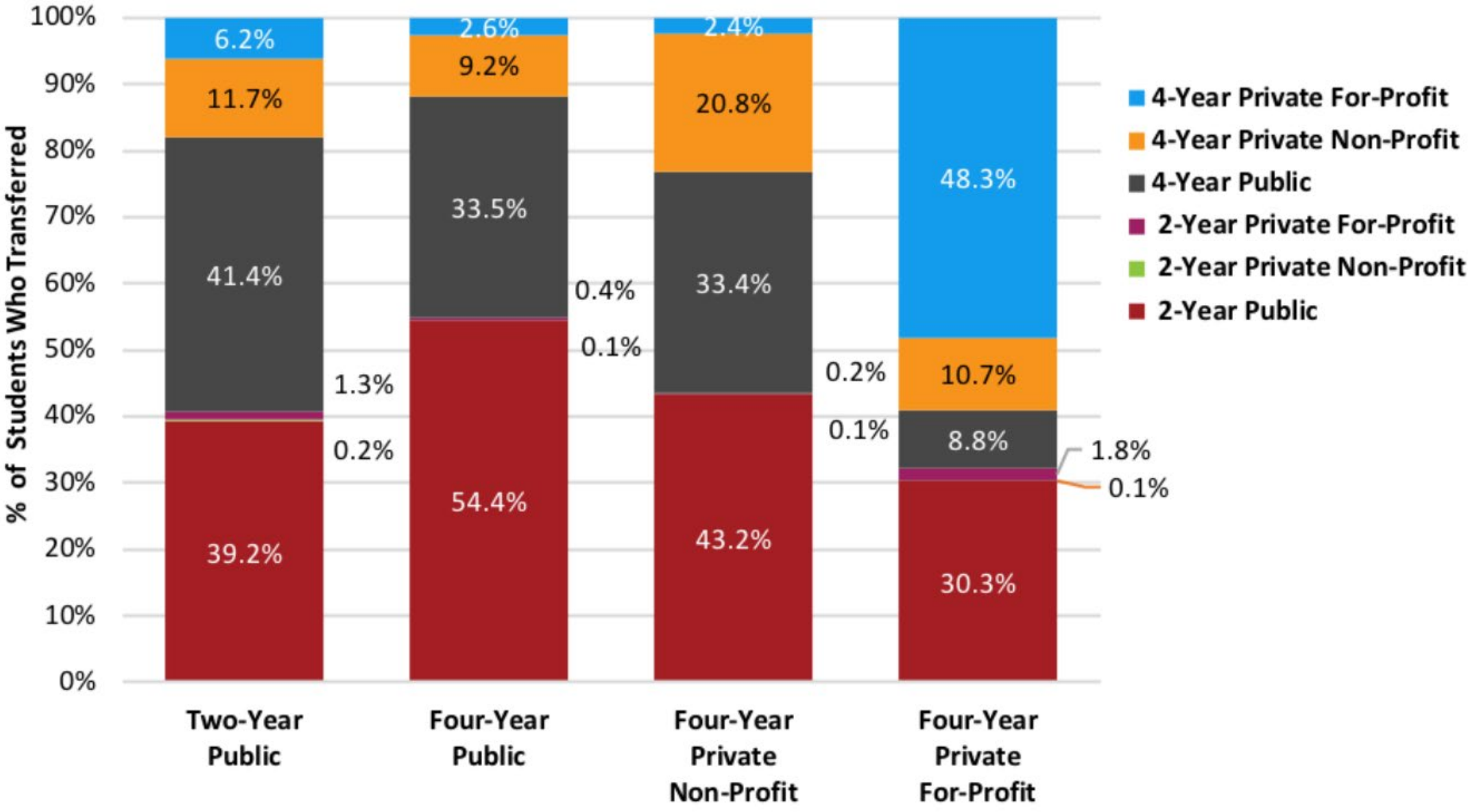
Mobility rates are growing: Nearly 40 % of learners who initially enrolled in 2011 transferred at least once in six years.



Impacts of mobility are even more pronounced in 4 year schools



Across ALL industry sectors



Campus level view

The acute transfer impact on campus cannot be overstated

Predominantly on-Line campus

Data from 2017 fall cohort of students:

- 90% students transferred in from 2,650 institutions
- 75% of all learners over the age of 30
- 60% have a prior credential

Data from 2014 cohort of students:

- 15% of students transferred out to 1,327 institutions

Four year public campus:

Data from 2017 fall cohort of students:

- 60% students transferred in from 2,000+ institutions
- 66% transferred in from out of state
- 33% of out of state transfer ins had two or more previous enrollments

Data from 2014 cohort of students:

- 30% of students transferred out to 1,300 institutions

In addition:
Fragmentation of traditional learning models:

DELIVERY

- On-line learning
- Across state lines
- Non-traditional enrollments (not for credit, CEU's etc)

OUTCOMES

- CBE and academic completions
- Advent of proliferation of micro-credentials
- Recognition of the validity of workforce credentials

The LRI initiative is timely:
Industry complexity & getting out in front of a future of growing complexity

THE ASK

Help deliver for the industry

Coalition of the willing!

Workstreams: The establishment of workgroups to help bring a proof of concept to life:

- School Participation
- Operations
- Technology
- Governance
  - Operations
- Sustainability
- Project Mgmt

Indication of Interest Form – Get Involved!

http://www.tiny.cc/LRI-Interest

THANK YOU