ASSESSMENT SYSTEMS
FOR GOOD MEASURE™

FASTTEST AND COLLEGE BOARD LATIN AMERICA

ANDREW LUNSTAD
2017-05-12

WHO WE ARE

Assessment Systems has empowered clients with computerized testing systems since 1979. We exist to supply best-in-class software platforms and consulting services to support high-quality measurement in completely scalable solutions. Whether you need a user-friendly item banking system, secure test delivery, or desire to out-source your high-stakes exam, Assessment Systems solutions improve your success.

Trust the Flexibility of FastTest

FastTest is a best-in-class comprehensive online assessment management system built off our 35+ years of computer-based testing and item banking experience. FastTest is designed for any size organization that is looking to control their entire test development process through a convenient user-friendly online experience.

NABP
NATIONAL ASSOCIATION OF BOARDS OF PHARMACY

American Board of Toxicology Inc. Incorporated at Washington D.C., April 17, 1979

The American College of Obstetricians and Gynecologists · Women's Health Care Physicians · 1951

American Board of Pathology 1936

Norwegian Directorate for Education and Training

Ministry of Education, Science and Culture

PHILIPS Healthcare

UnitedHealth Group

AGENDA

All Participants
INTRODUCTIONS
9:00 am - 9:15 am

College Board PRLAO
RE-STATEMENT OF THE GOALS OF THE EFFORT
9:15 am - 10:00 am

Bidder
PRESENTATION OF THE PROPOSED SOLUTION - DAVE AND ANDREW
10:00 am - 12:00 pm

Lunch Break
12:00 pm - 1:00 pm

Bidder
METHODOLOGY AND APPROACH ON MIGRATION- JORDAN AND KAT
1:00 pm - 2:45 pm

Methodology and approach on Integration
Methodology and approach on Development & Customizations
Project Timeline

Break
2:45 pm - 3:00 pm

Bidder
PRESENTATION OF KEY PROJECT STAFF
3:00 pm - 4:00 pm

Core responsibilities and approach on this efforts
Presentation of successes in prior similar engagements

All Participants
Q & A
4:00 pm - 5:00 pm

INTRODUCTIONS

DAVE SABEN

President and Chief Executive Officer

- 15+ years experience assisting organizations/ governments implement and commercialize successful academic initiatives including the US Department of Labor, US Department of Education, State of Florida, Ascend Learning, Providence Equity Partners and Lakeside Capital Group.

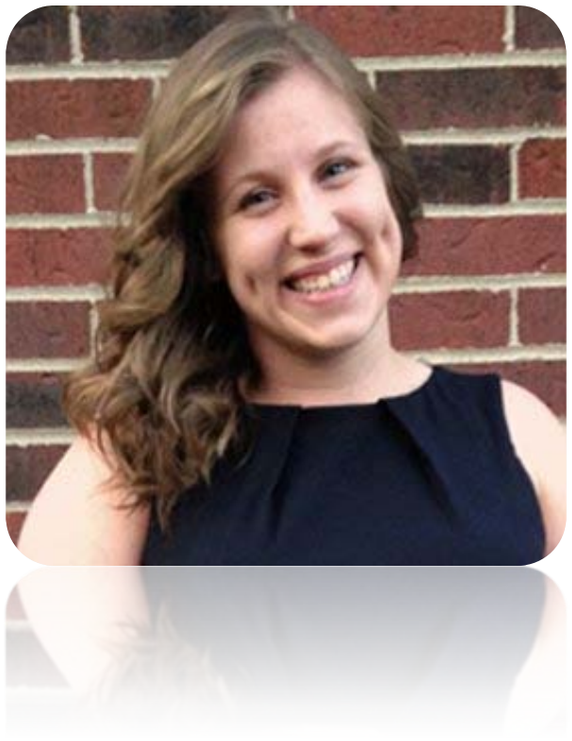
- Author, Investor and Edupreneur

INTRODUCTIONS

Kathryn Stanley, MA, PMP

- 7 years experience as a Program Manager with large scale implementations in higher education, end-of-course and k-8 in both high- and low-stakes testing
- Master of Arts in Industrial/Organizational Psychology from Austin Peay State University, Clarksville, TN
- Bachelor of Science in Social Work and a minor in Business Administration from Bemidji State University, Bemidji, MN
- Certified Project Management Professional

INTRODUCTIONS



JORDAN STOEGER
Measurement Specialist

- 5 years experience in project coordination, including 3 years in various roles at Assessment Systems
- Managed migration of over 30k items for previous clients
- Expert in FastTest functionality, optimization, and training
- Published author, *The Industrial-Organizational Psychologist*
- Bachelor's Degree in psychology from the University of Minnesota, Twin Cities

INTRODUCTIONS

Nathan Thompson, PhD
Chief Product Officer

- 15 years experience in psychometrics and test development
- Contributed design and development to FastTest, Iteman, Xcalibre, SIFT, TestAssembler, and a number of free tools
- Written over thousands of test items in range of disciplines
- 100+ articles and conference presentations
- Founder and Membership Director, IACAT
- PhD, University of Minnesota: Psychometrics
- BA, Luther College: Mathematics, Psychology, and Latin

INTRODUCTIONS

ANDREW LUNSTAD

VP of Development

- 16+ years experience in software development, SaaS, video gaming, mobile computing, and high performance and high availability
- Gamified learning at 3M corporation
- Designed and Launched multiple Educational testing solutions at Assessment Systems
- Key technical resource in bringing 2 countries' national assessments online
- BS in Computer Engineering from Bucknell University

CORE VALUES

WE D.R.E.A.M

WE DREAM OF A BETTER WORLD
THROUGH ACCURATE MEASUREMENT

DATA RULES EVERYTHING AROUND ME

We are a data centric organization.
We believe all data points are important,
so collect everything.

WE MEASURE

We live and breathe measurement.
We solve problems and provide answers through measurement. We measure our successes and failures and hold each other accountable.

DO THE RIGHT THING

We do the right thing by our partners, our people and our planet. This means we respect all people and always assume positive intent.

WE DRIVE CHANGE

We are non-conformist and say unpopular things because they are right.

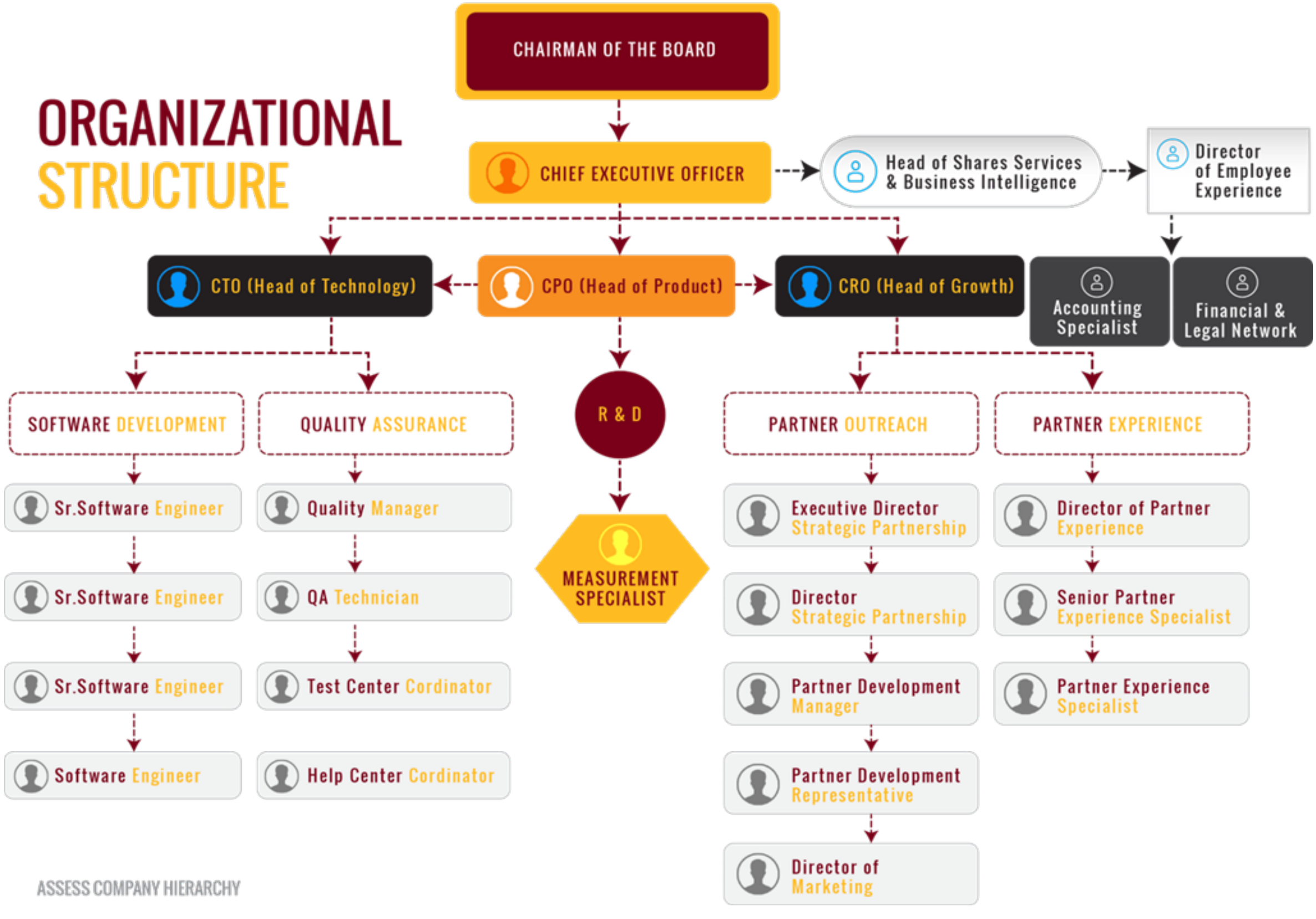
COLLABORATE

One of us is not as smart as all of us
We are a TEAM that values everyone's contribution
The best solution wins regardless of who the solution came from
We collaborate with our PARTNERS and our TEAM to ensure THE BEST SOLUTION WINS

WE ADAPT

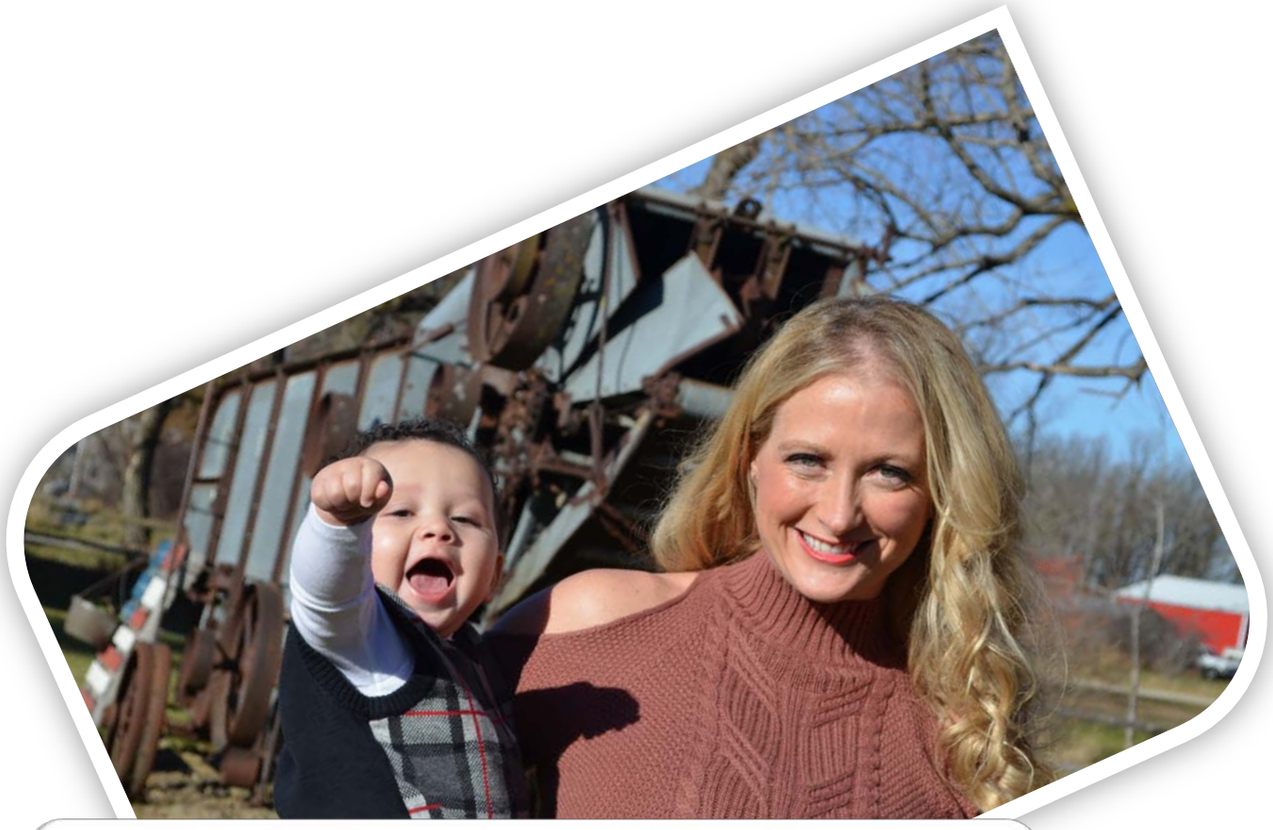
Our strength lies in our ability to adapt
We embrace and adapt to change, because markets consumer behavior and data changes

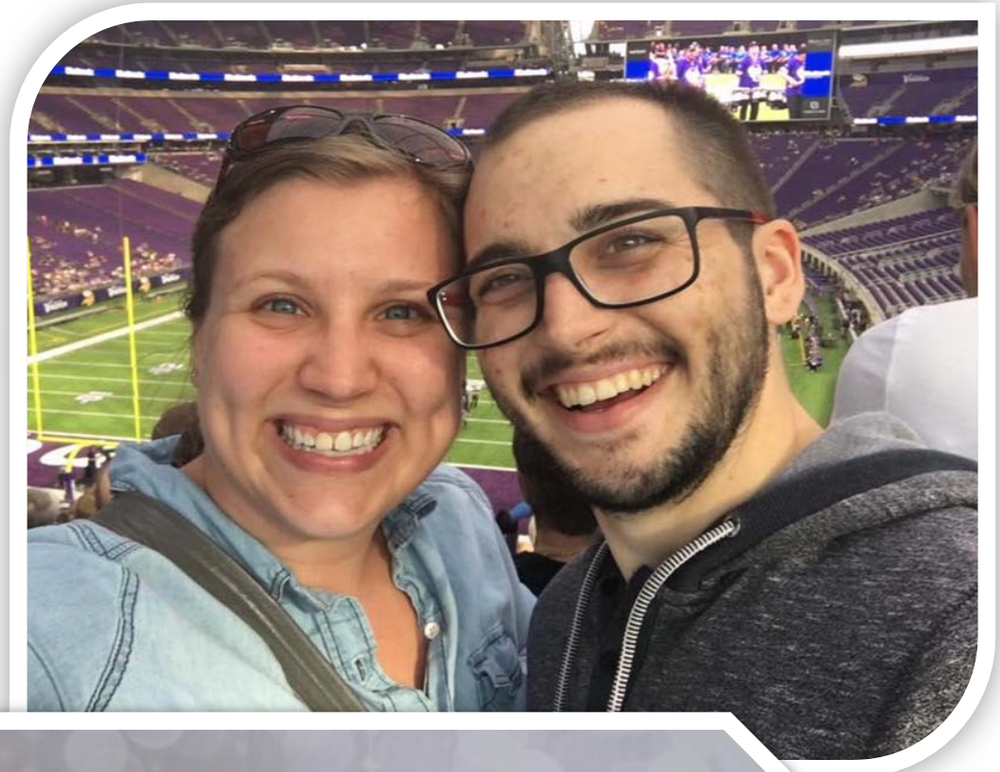
ORGANIZATIONAL STRUCTURE



ASSESS COMPANY HIERARCHY

OUR PEOPLE





PROPOSED SOLUTION

FROM RESEARCH TO APPLICATION

FASTTEST
Build Better Tests

35 years of experience demonstrating better ways to use testing. Capture the Power.

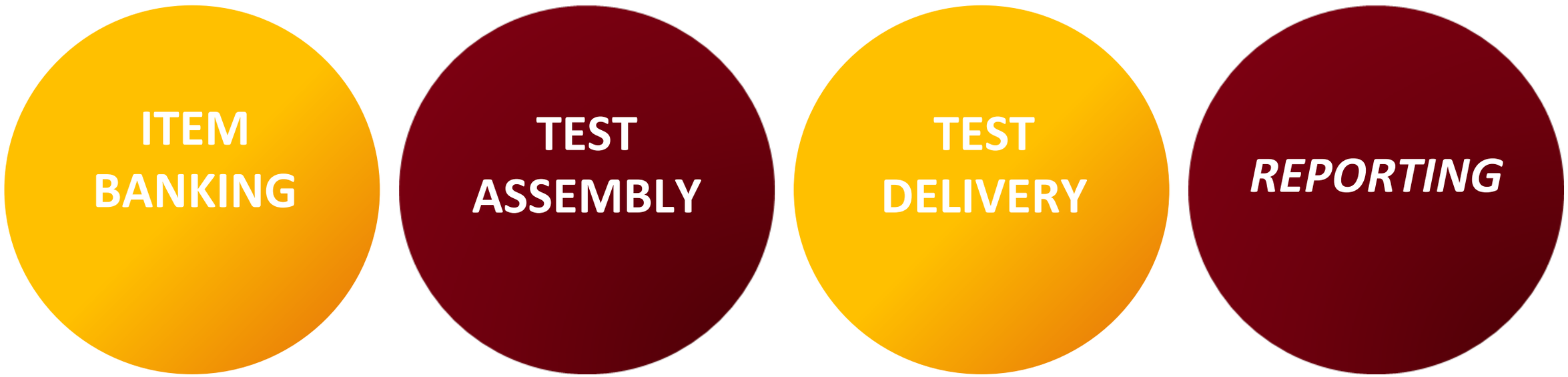
100’s of diverse organizations with one advantage in common

THE VALUE OF AUTOMATED PSYCHOMETRICS -

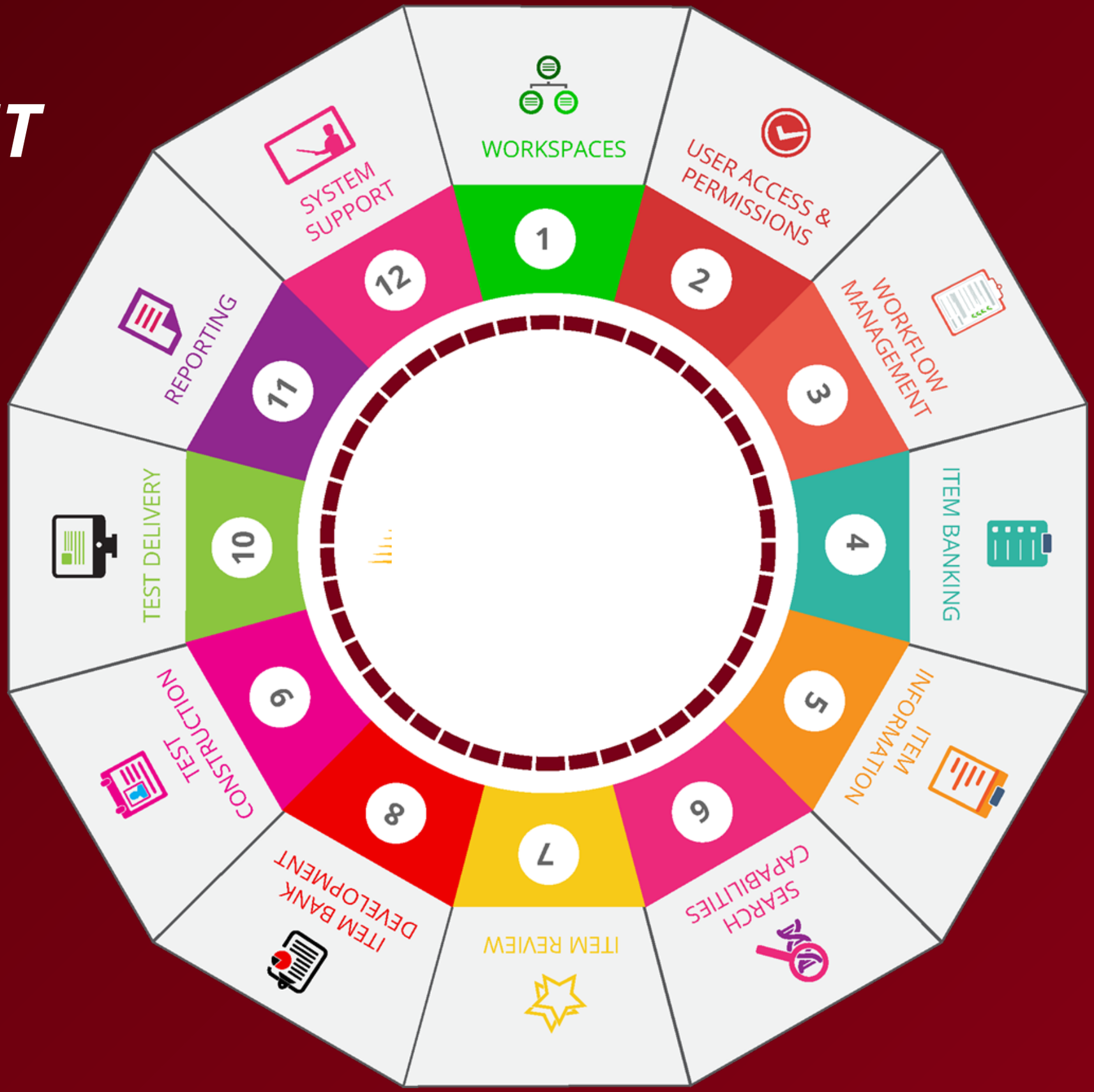
FASTTEST
Build Better Tests

35 years of experience demonstrating better ways to use testing. Capture the Power.

INTEGRATED TEST PROGRAM MANAGEMENT



NATIONAL ASSESSMENT PROGRAM

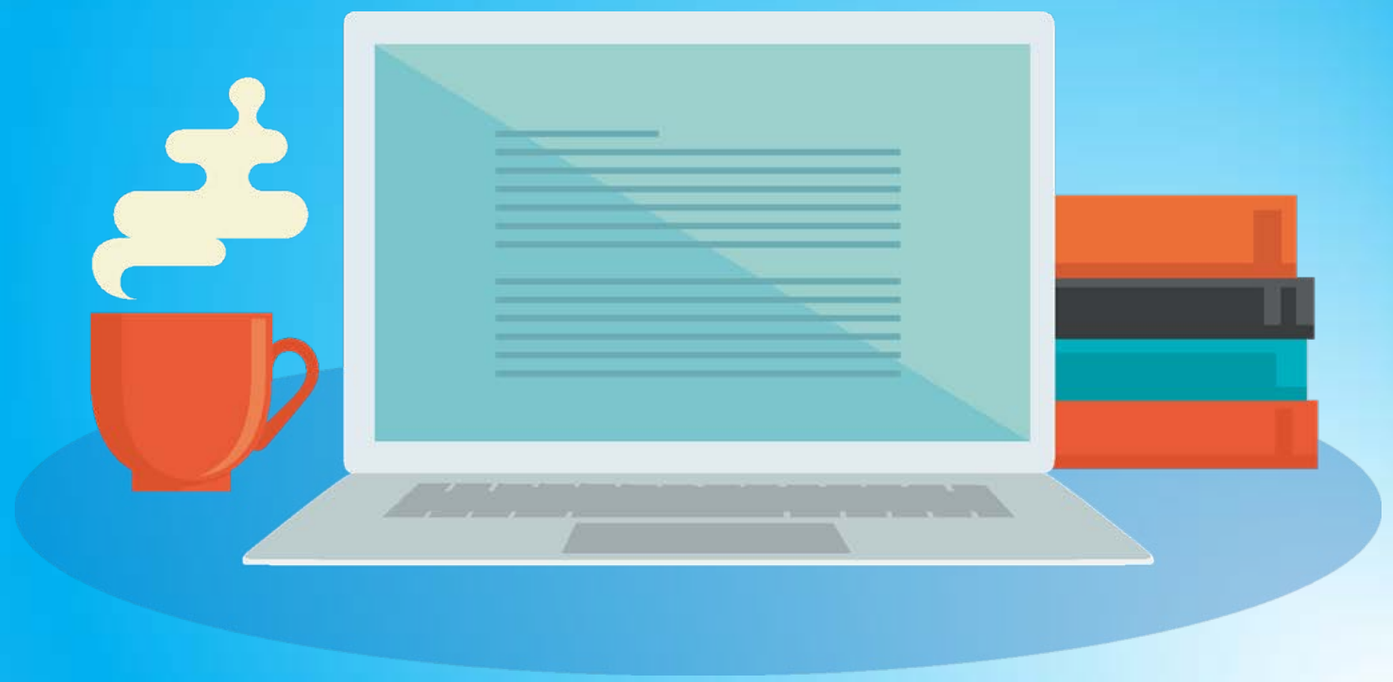


Extending Access: Internet Test Development

- *Allow the best subject matter experts to join the development team - wherever they live - saving time away from the classroom.*
  - *Facilitate existing items using a batch upload process*
  - *Make better test design decisions based on a full view of item details such as author, reference material, learning level and item performance statistics*

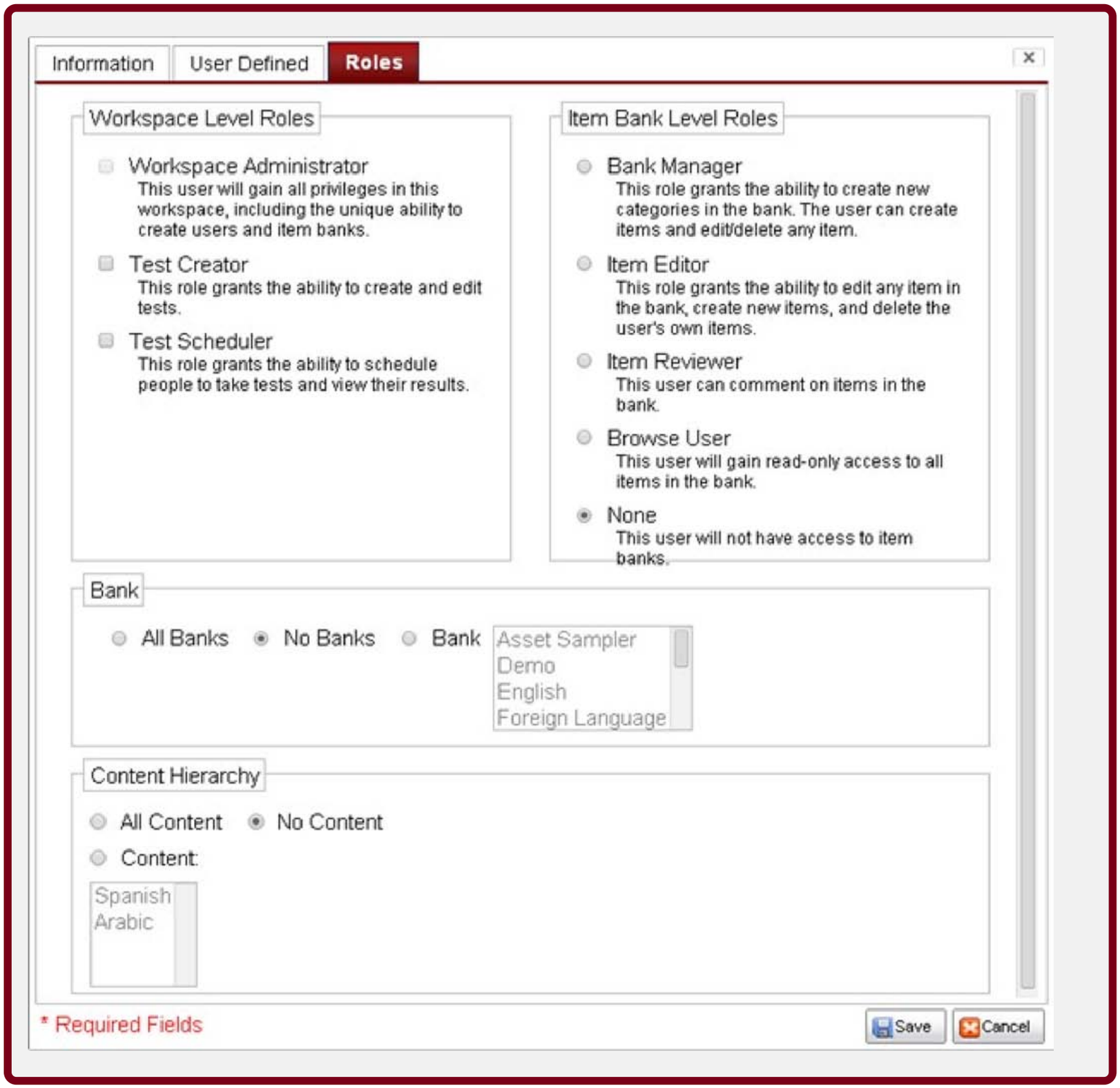
Increased access for great item writers

Easy to use editorial process



Managing System Access

- *Password Protected*
- *Roles Based*



POWERFUL TEST ASSEMBLY

- ***LINEAR***

Order of presentation may the same on every test, or may be varied across responses, items, or test sections

- ***LOFT – LINEAR ON THE FLY***

Items may be selected from a pool of items based on content area selections to reduce cheating and copying

- ***CAT – COMPUTER ADAPTIVE***

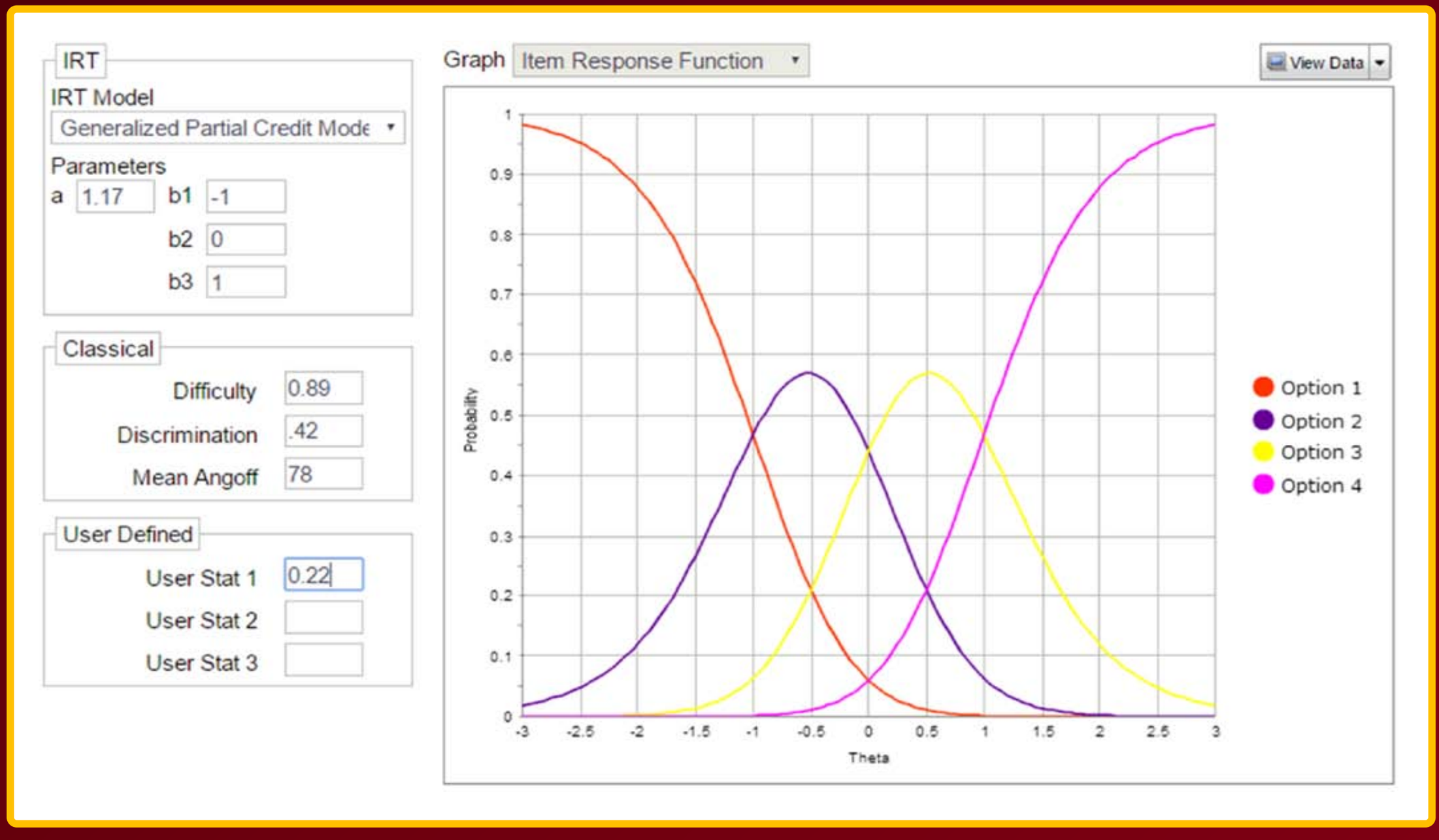
Saves testing time and make tests more precise and meaningful to both candidates with high potential and those still developing their skills

EASY TO USE

MORE SECURE

MORE PRECISE

PRECISE IRT CALIBRATION



Better Items = Better Tests = Better Education for ALL Candidates & Organizations

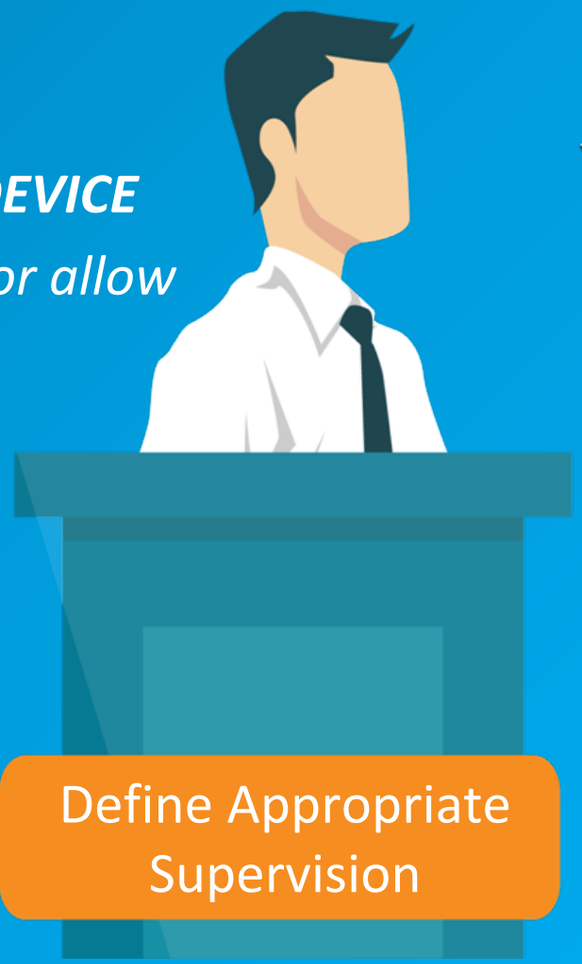
SECURE TEST DELIVERY

- ***LIMIT ACCESS TO HIGH STAKES TEST***
  Select time and location allowed for each test

- ***ENCOURAGE UNPROCTORED PRACTICE TESTS***
  Candidate sees the same test format at home or at association center

- ***BYOD – BRING YOUR OWN DEVICE***
  Use association's computers or allow candidate to provide their own devices

Expand Location Options



Define Appropriate Supervision

Control High Stakes Enrollment

FLEXIBLE REPORTING

It is YOUR DATA

- *Easy access to data exports*
- *Student scores*
  - *Scores for all candidates*
  - *Department comparisons*
  - *Aggregated Results*

Export	Description
Examinee Data	Provides summary information such as examinee name, test, date, score, subscores, etc. Does not include responses to individual items.
Raw Response Matrix	Report provides name and test information, as well as examinee's responses to each item. It provides full detail on unscored responses.
Data Analysis Matrix	Similar to the Raw Response Matrix, but with polytomous items such as multiple response or drag-and-drop converted from raw information to earned points. For example, the raw matrix would say that the examinee selected A,B,E on a multiple response item; if A and E were correct answers, the Data Analysis Matrix would simply say "2" because two points were earned.
Examinee Comments	Provides comments examinees have made on individual items while completing an exam.
Examinee Item Times	Provides time (latency) used on individual items.
Examinee Test Detail Report	Provides information on an examinee's encounter with a single test. Useful for examining adaptive test data because you can track the path of the adaptive algorithm. (Only available for individual examinee exports)
Examinee Score Report	The score report that you have designed for the test taken. (Only available for individual examinee exports)

METHODOLOGY ON CUSTOMIZATION

METHODOLOGY ON MIGRATION AND INTEGRATION

- **Schedule and facilitate kick off meeting**
  - Provide Project Charter

METHODOLOGY ON MIGRATION AND INTEGRATION

- **Schedule and facilitate 2-3 discovery meetings**
  - Information and knowledge transfer plan
  - Systematic approach to import items into system

METHODOLOGY ON MIGRATION AND INTEGRATION

- **Develop Project Plan**
  - Timeline
  - Quality Control measures
  - Support strategy
  - Review of communications plan
  - Identify risks

METHODOLOGY ON MIGRATION AND INTEGRATION

Multi-faceted approach to FTW training

METHODOLOGY ON MIGRATION AND INTEGRATION

- **Weekly client facing meetings**
  - Provide agenda 24 hours in advance
  - Review previous week’s success and milestones
  - Discuss outstanding items
  - Address issues/concerns
  - Discuss upcoming milestones

- **Ad hoc meetings**
  - Address tech requests
  - Item import review

METHODOLOGY ON MIGRATION AND INTEGRATION

Review lessons learned

Develop plan for project maintenance going forward

PROJECT WRAP UP

Address risk going forward

Formally close project

METHODOLOGY ON MIGRATION AND INTEGRATION

CONTINUE WITH FORMAL PROGRAM MANAGEMENT

ITEM MIGRATION METHODOLOGY

- Comprehensive review of item types, current formats, and multimedia/assets
- Pilot migration with most complex item banks or categories
- Method adjustment for maximum efficiency
- Migration of remaining items by content
- QA review and clean up

ITEM MIGRATION PRIOR EXPERIENCE

- Large US school district, imported over 30k items
- 90% success upon initial internal review, over 99% success upon client initial review
- Included images, math equations, videos and other complex multimedia
- Time per item was roughly 1-1.5 minutes for end-to-end process
  Depends largely on current format and complexity of items and multimedia
- Executed many smaller scale projects (500-1,000 items) in similar fashion

CORE RESPONSIBILITIES ON APPROACH

OVERVIEW

CURRENT SYSTEM

WHAT MIGHT BE

HOW TO GET THERE

OVERVIEW

CURRENT SYSTEM

WHAT MIGHT BE

HOW TO GET THERE

CURRENT SYSTEM

- What we understand of your current system
- This is high level
- Some questions are included

CURRENT SYSTEM - TEST DEVELOPMENT

01

Items in Pacific Metrics

02

Psychometric statistics

03

Workflow, history (usage)

04

Metadata (content, Bloom Taxonomy, Subdomain)

CURRENT SYSTEM - TEST PUBLICATION

Export from Item Bank

Braille - this would seem to need a new test (no pictures)

Graphic Designers involved

Some images need rework

Regular and Large Print versions (laid out again by Graphic Designer?)

CURRENT SYSTEM - TEST REGISTRATION

Individual and Institutional

College Board branded

Schedules examinees to institutions and even seats, including student PII and other metadata as needed

CURRENT SYSTEM - TEST DELIVERY

Largely proctored by institutions, sometimes by CB PR

Occasionally proctored and scored by institutions

ALL PAPER

Usually shipped to CB PR for scanning/scoring

Existing Web Portal for scoring (internal and external)?

CURRENT SYSTEM - ANSWER IMPORT

Not sure how it works when institution managed?

Items are marked by CB PR staff in web based system

Usually handled by CB PR

All scanned and uploaded into marking system

Item can undergo multiple reviews (5 levels of review? need more info)

CURRENT SYSTEM - SCORING

A SEPARATE SYSTEM

ITERATIVELY PART OF PSYCHOMETRIC SCORING PROCESS

WOULD LIKE IT TO BE FASTER

CURRENT SYSTEM - REPORTING

LOTS OF GREAT, GRAPHICAL REPORTS!

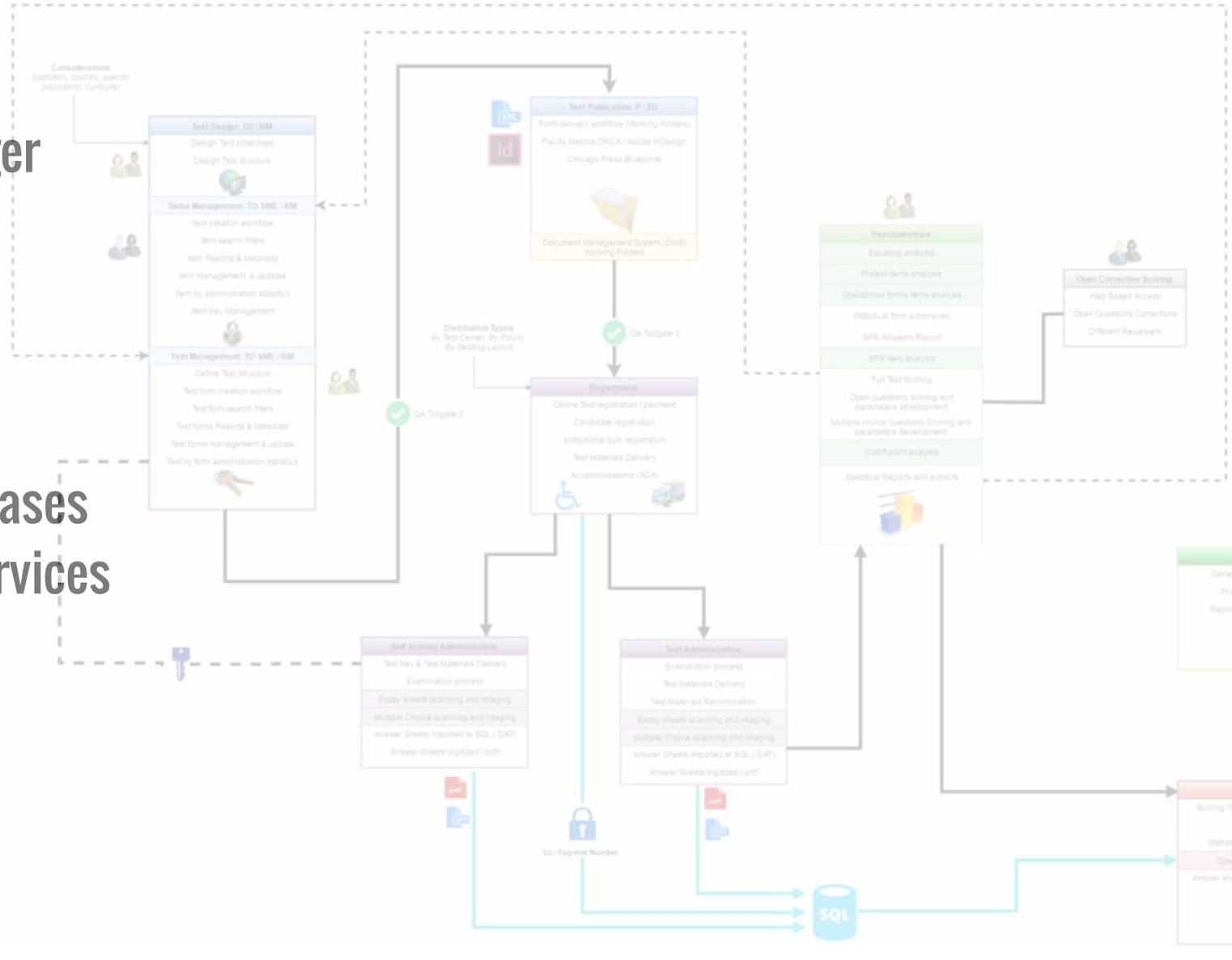
FOR EXAMINEES, INSTITUTIONS AND INTERNAL / TECHNICAL

SOME EXTERNAL REPORTS HAVE AUTHENTICITY CODE FOR WEB VERIFICATION

CURRENT SYSTEM - COMPONENT OVERVIEW

MANY COMPONENTS, COMPLEX PROCESSES

1. ITEM Bank & Reviewer Portal
2. IREG Student Portal
3. Open Correction
4. DataWeb Import Manager
5. Scoring Tool
6. Scoring Services
7. Microsoft Excel
8. ITEMAN 4
9. Microsoft Access Databases
10. Microsoft Reporting Services
11. SQL Database Systems
12. Cloud Based CRM



CURRENT SYSTEM - COMPONENT OVERVIEW

FEWER FUNCTIONS, TWO CATEGORIES – OPPORTUNITY TO SIMPLIFY

TEST CENTRIC

1. Item Banking
2. Online Marking
3. Scoring
4. Reporting
5. Data Import
6. Data Scrubbing (QA)
7. Hand Scoring

CUSTOMER CENTRIC

1. IREG Student Portal
2. Cloud Based CRM

OVERVIEW

CURRENT SYSTEM

WHAT MIGHT BE

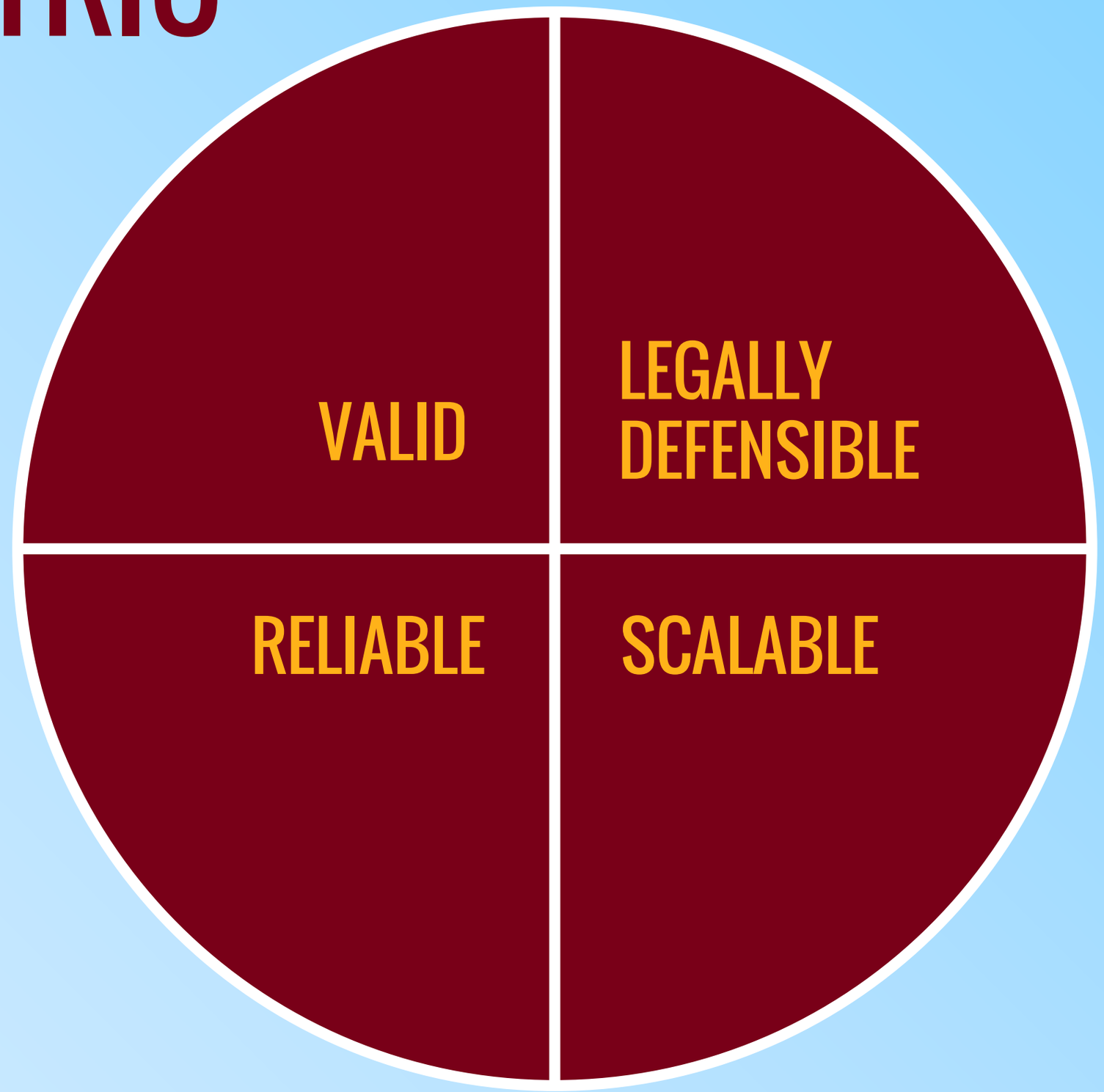
HOW TO GET THERE

WHAT MIGHT BE - GOALS

- Psychometric rigor
- Efficiency
- Simplicity

PSYCHOMETRIC RIGOR

- IN OUR DNA



EFFICIENCY AND SIMPLICITY

FEWER COMPONENTS

- Component boundaries where they make sense
- Categories

TRACK RECORD OF EFFECTIVENESS

SCALABLE

WHAT MIGHT BE - GOALS

TEST INFRASTRUCTURE CENTRIC

1. Item Banking
2. Scoring
3. Reporting
4. Data Import
5. Data Scrubbing (QA)
6. Import hand/paper scores

FASTTEST
Build Better Tests

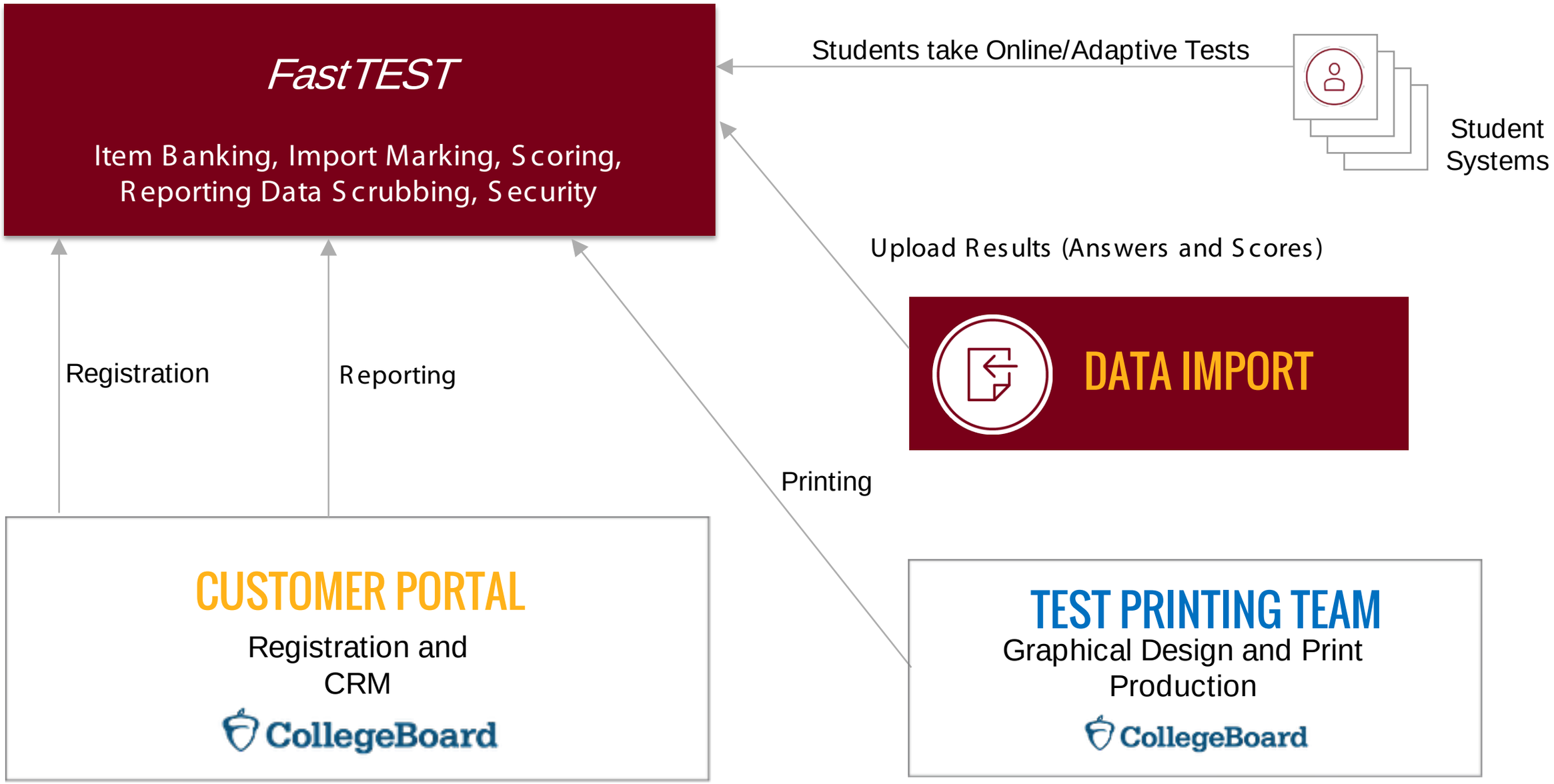
CUSTOMER CENTRIC

1. IREG Student Portal
2. Cloud Based CRM
3. Content

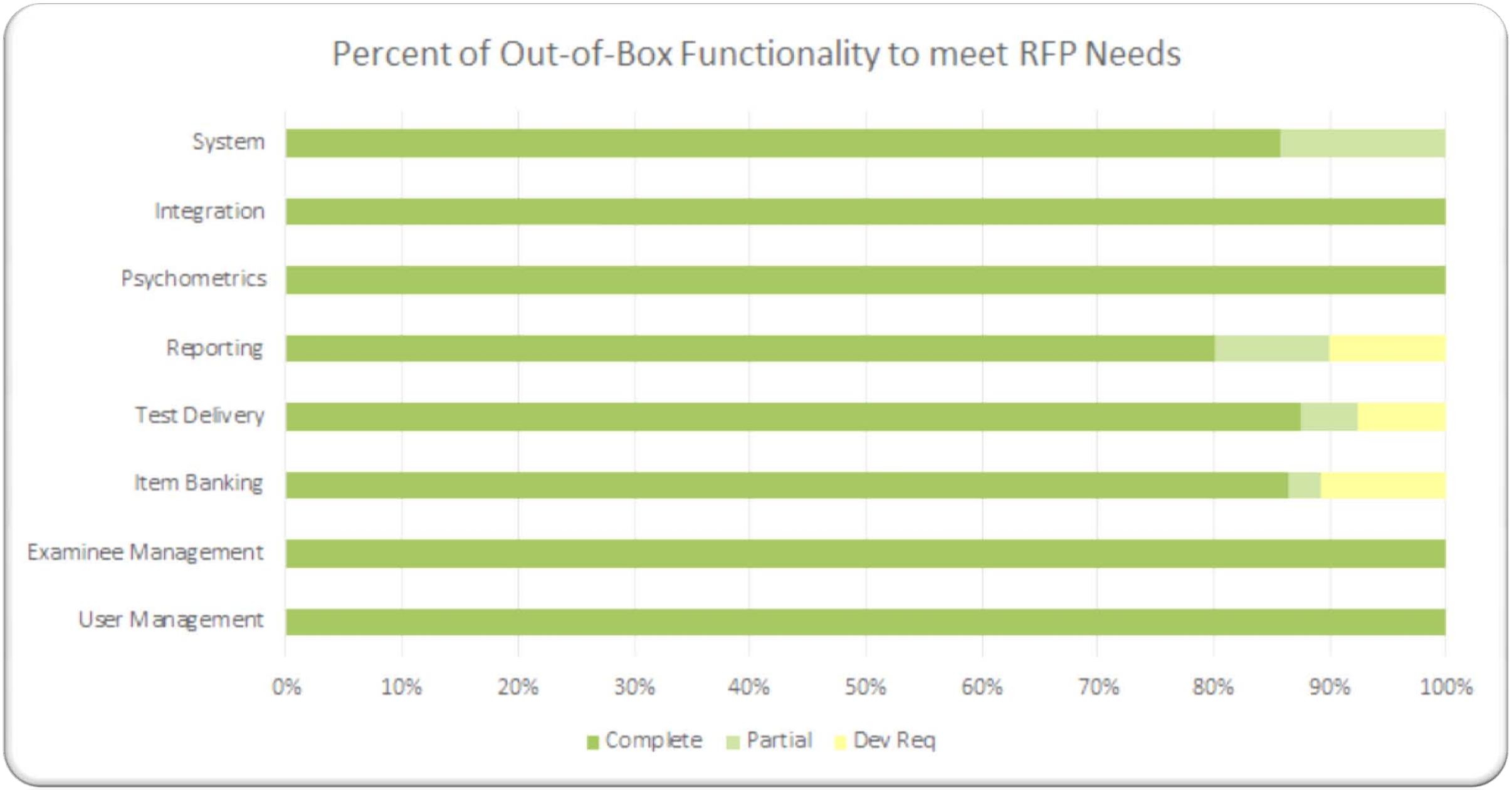
CollegeBoard

Customer Portal

WHAT MIGHT BE - THREE COMPONENTS



Proposed Solution



We are already most of the way there

OVERVIEW

CURRENT SYSTEM

WHAT MIGHT BE

HOW TO GET THERE

HOW TO GET THERE

- More discovery needed
- Most of proposed functionality is in production
- Gaps can be addressed through extension or modification of process
- Significant reward
- Significant effort

HOW TO GET THERE - PHASED APPROACH

Prioritize necessary and preliminary steps

Begin work on the parts we know - immediate wins

Subsequent estimates refined as we learn more

HOW TO GET THERE
PHASED APPROACH

- Import Items (Get all items and statistics into FastTest)
- Move Scoring to FastTest
- Move Test Construction and Printing To FastTest
- Move Registration to FastTest
- Move Reporting to FastTest
- Begin Online Test Delivery in FastTest

HOW TO GET THERE - 1: ITEM BANK WORK

Easier Item development

Some better reports

Import Items (Get all items and statistics into FastTEST)

Easier Item history

Budgetary Estimate: $30K

HOW TO GET THERE - 2: REGISTRATION AND SCORING

Item Statistics imported into FastTest

Simple reporting to generate reports externally

IREG System calls FastTEST APIs to create registrations

Final scores generated

Budgetary Estimate: $0K

HOW TO GET THERE - 3: ONLINE MARKING AND QC

College Board has a working system

Merge scanned results with marking results and report as today

Budgetary Estimate: No anticipated costs

HOW TO GET THERE - 4: INTEGRATED REPORTING

Reports Generated in FastTEST using integrated BI Engine

Credential lookup support for College Board Portal

Budgetary Estimate: $3k per report

HOW TO GET THERE - 5:
PSYCHOMETRIC ANALYSIS

ALL ANALYSIS DONE ONLINE (ITEMAN, XCALIBRE)

ALREADY PART OF OUR ROADMAP

ITEMAN
Automate your Item Analysis

xcalibre

HOW TO GET THERE - 6:

Other missing functionality

A few minor/optional items

✓ Scaled score lookup

✓ Categorical Scoring

✓ Accelerate XCalibre

BUT

✓ Cost is low

✓ Effort low too

HOW TO GET THERE - 7:
ONLINE DELIVERY

We have brought 2 countries' national assessments online already

BUT

✓ No paper scanning costs

✓ More productive markers

HOW TO GET THERE - SUMMARY

Already almost there!

Multiple budget controls to manage costs

Psychometric consulting handled separately

DEMONSTRATION

Shots and Live

We have brought 2 countries' national assessments online already

BUT

✓ No paper scanning costs

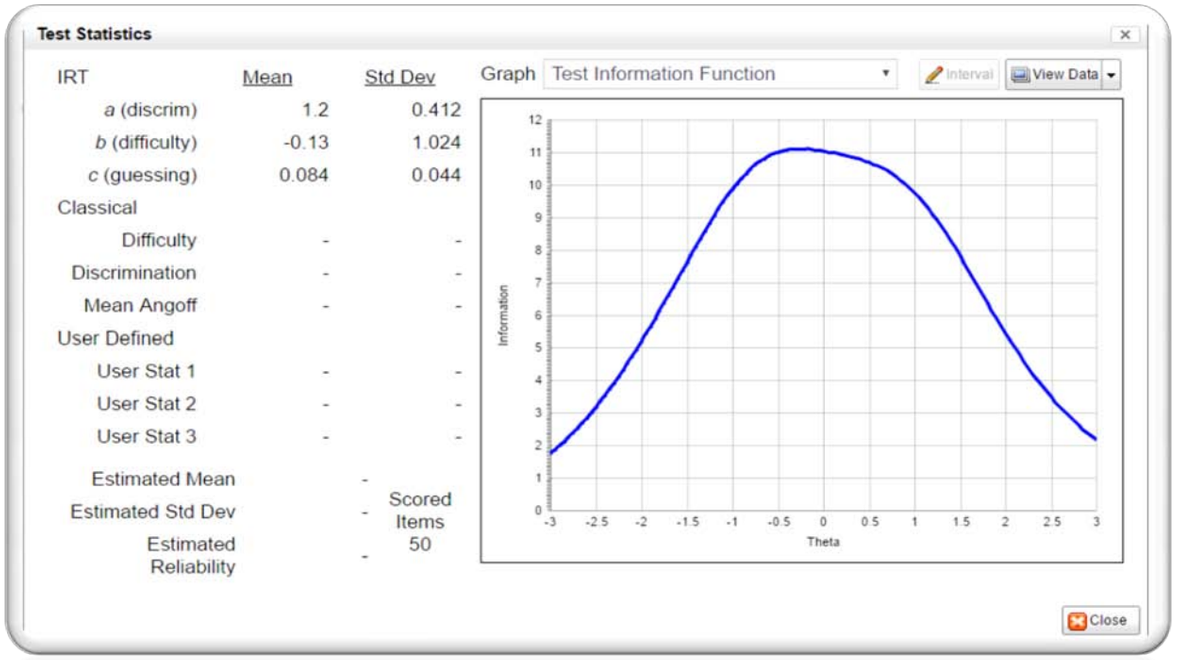
✓ More productive markers

Proposed Solution

Ver.	Name	Bank	Description	Author	Status	Stem Text
1	8A-1_001	Biology		Jordan Stoeger	Active	Complete the sentences below.
1	8A-1_002	Biology		Jordan Stoeger	Active	Drag the cell parts to the appropriate...
1	8A-1_003	Biology		Jordan Stoeger	Retired	Drag the cell type to the appropriate ...
2	8A-1_004	Biology		Jordan Stoeger	Active	Identify the main components of cell...
1	8A-1_004	Biology		Jordan Stoeger	Active	Identify the main components of cell...
1	8A-1_005	Biology		Jordan Stoeger	Review 1	Select the cell parts that are part of t...
1	8A-1_006	Biology		Jordan Stoeger	Active	Identify the parts of the cell in the im...
1	8A-1_007	Biology		Jordan Stoeger	Review 2	Identify which of the following are ma...

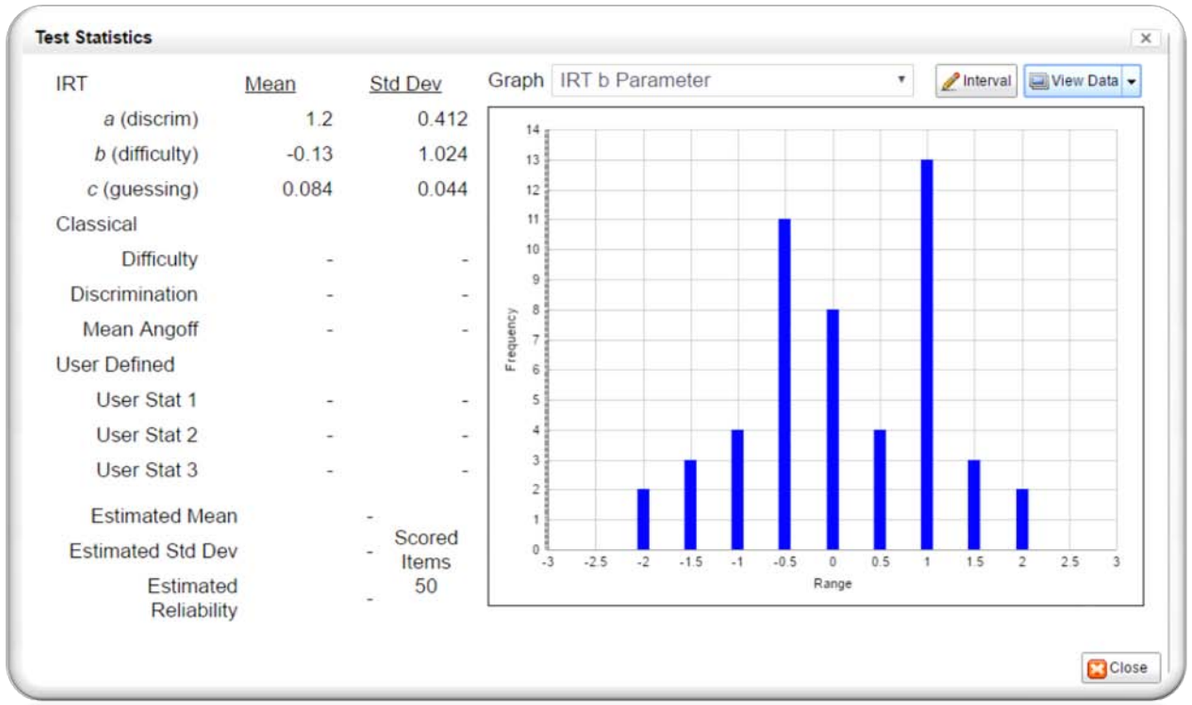
Integrated item versioning support

PROPOSED SOLUTION

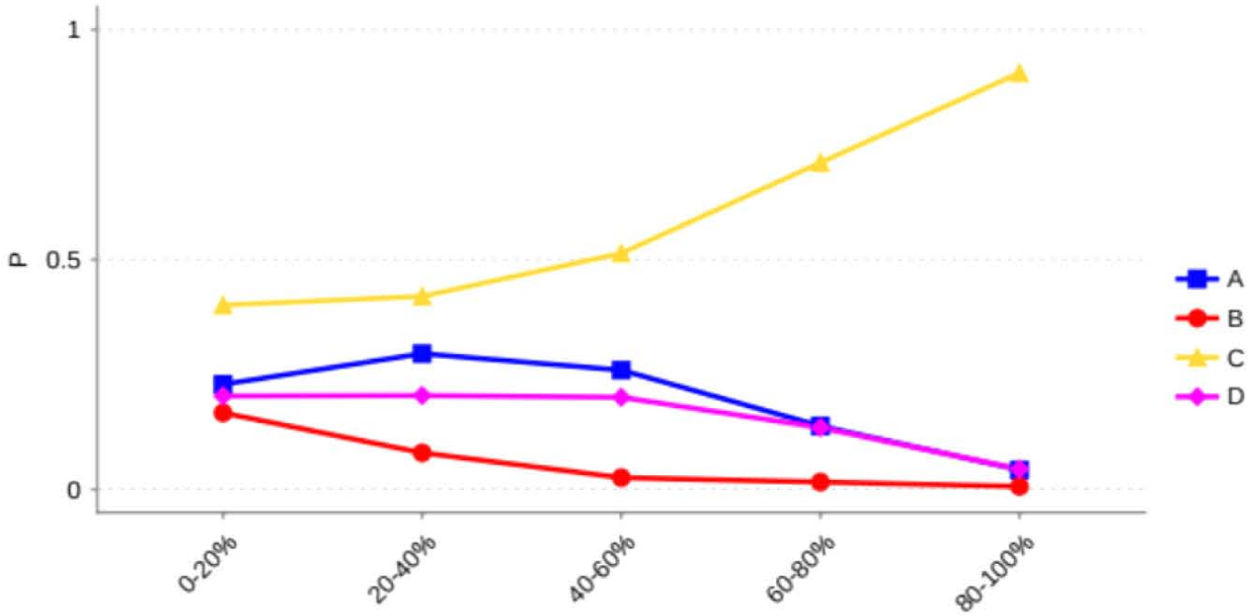


Integrated view of Test Information Function

Other Test statistics available



PROPOSED SOLUTION



Item Statistics

Key	Scored	N	Options	Domains	P	Total Rpbis	Mean	Flags
C	Yes	1929	4	3	0.555	0.430	0.555	

Option Statistics

The scientist was skeptical of the results.

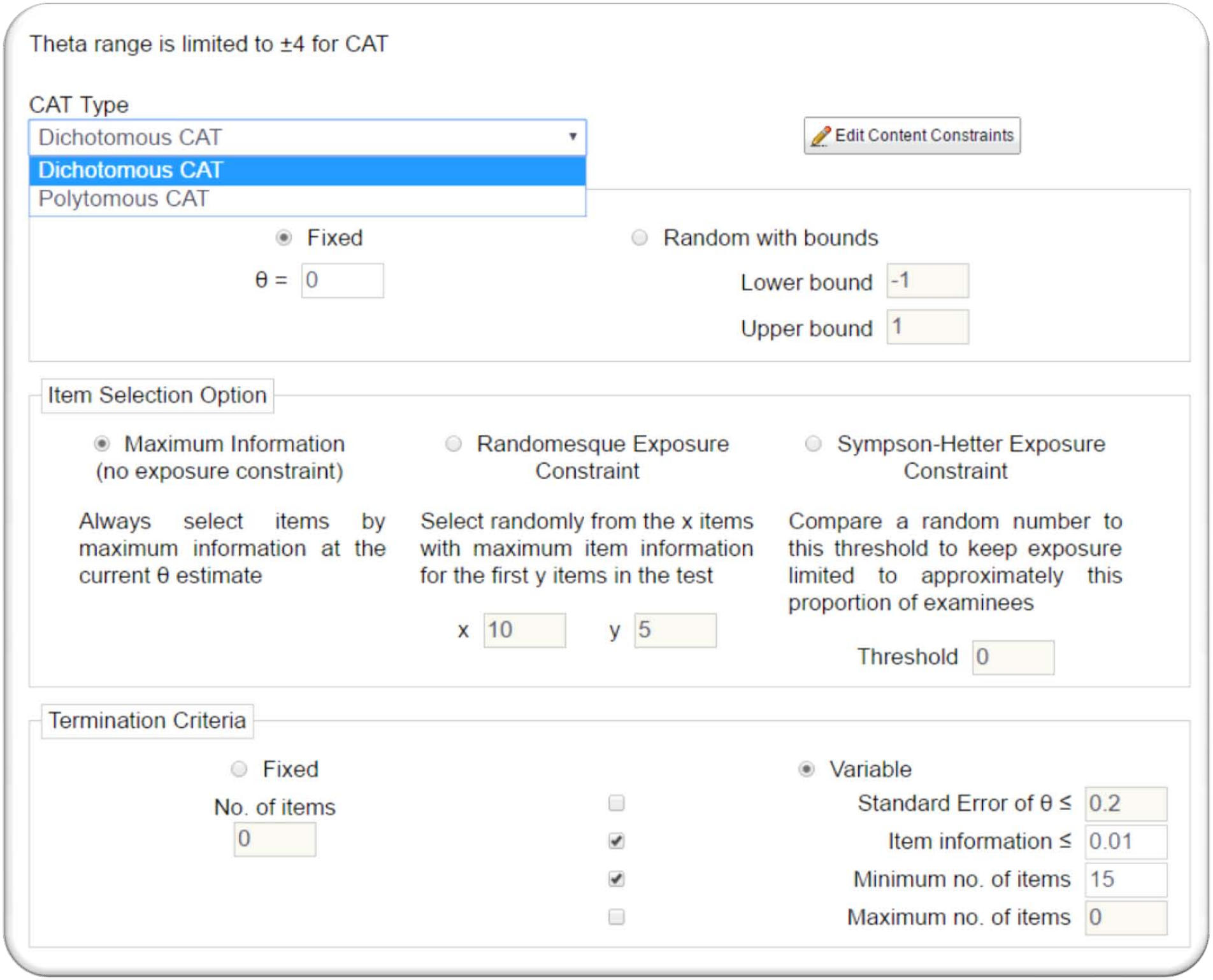
Option	Text	N	Prop	Rpbis	Weight
A	wondrous	355	0.184	-0.095	0
B	terrified	96	0.050	-0.143	0
C	**unbelieving**	**1071**	**0.555**	**0.430**	**1**
D	nervous	268	0.139	-0.060	0
Omit		139	0.072	0.000	
Not Admin		959			

Quantile Plot Data

Option	Mean	SD	0-20%	20-40%	40-60%	60-80%	80-100%
A	39.479	14.218	0.229	0.296	0.260	0.138	0.043
B	33.417	14.218	0.167	0.080	0.026	0.016	0.007
C	**47.224**	**14.218**	**0.401**	**0.420**	**0.514**	**0.711**	**0.906**
D	40.175	14.218	0.203	0.205	0.201	0.135	0.044

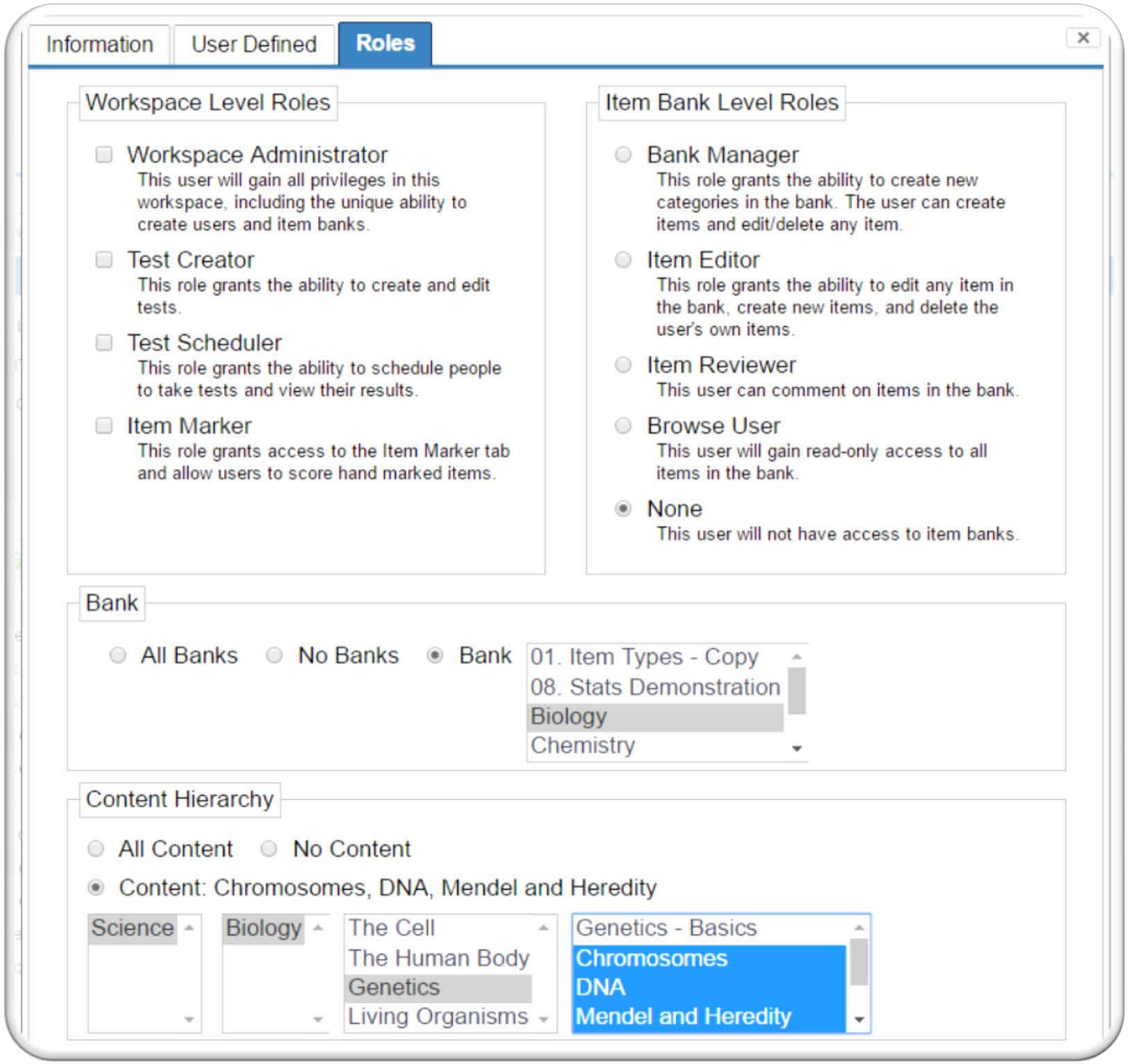
Integrated Reporting already provides classical test statistics for the test and items

PROPOSED SOLUTION



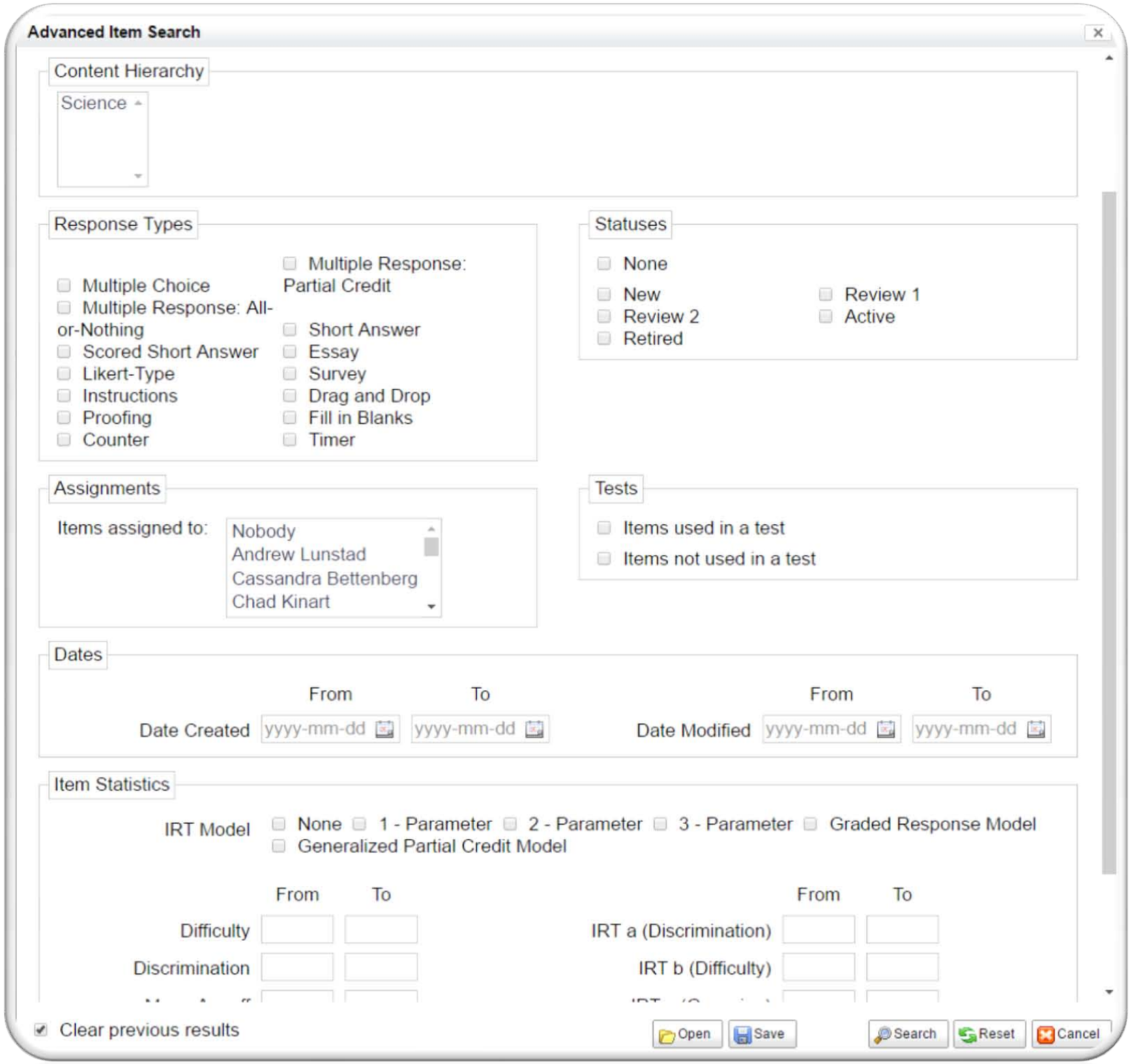
Rich CAT Configurability Options already available

PROPOSED SOLUTION



Powerful user access controls

PROPOSED SOLUTION



Extensive Search Options in Item Banking

PROPOSED SOLUTION

8. Which group of elements is highlighted in the image below?

- Alkali metals
- Chalcogens
- Halogens
- Noble gases
- Alkaline earth metals

Online testing already available with multimedia support for STEM, Language or other testing

PROPOSED SOLUTION

Use the information below to answer the questions to the right.

Reginald needs 375 calories per day to maintain his weight.

Food Type	Amount	kC
Dry Food	1 cup	280 kC

3. Reginald's owners want to feed him only wet food three times each day. What percent of a can of food should Reginald get at each feeding to maintain his weight?

- ◯ 33%
- ◯ 50%
- ◯ 67%
- ◯ 81%

4. Reginald's owners want to feed him one can of wet food and one chicken wing each day. How many more calories do they need to be feeding him each day to maintain his weight?

- ◯ 102 kC
- ◯ 88 kC
- ◯ 117 kC
- ◯ 189 kC

5. Reginald's owners want to feed him just 1 can of wet food each day.

   If Reginald's owner fed him no raw chicken, how many cups of dry food would he need each day to maintain his weight?

- ◯ about 1/2 cup
- ◯ about 3/4 cup
- ◯ about 1 cup

Many formatting options for items and graphics and beautiful, responsive delivery.

CONCLUSION

+ Current System
+ What Might be
+ How to get there

QUESTIONS

PSYCHOMETRIC ROADMAP

- Goal: Provide more functionality that drives our clients to develop better assessments
- There are a number of ways we can currently work with CBPRLAO to

IMPROVE ASSESSMENT ENGINEERING

★ Reduce work hours and eliminate manual data processing
★ Manage item development teams
★ Enhance security
★ Improve validity documentation

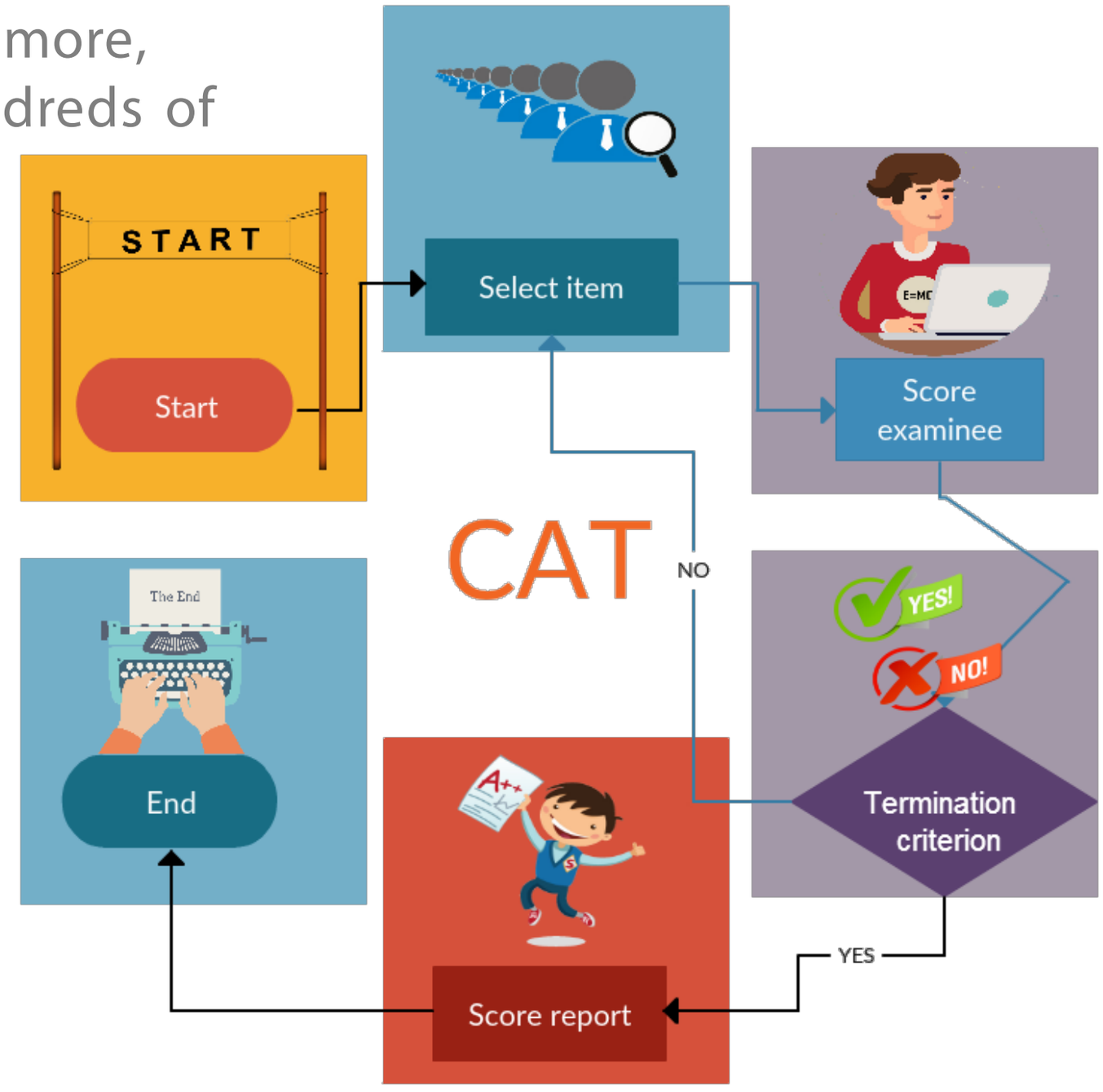
IMPROVE EXAMINEE EXPERIENCE

★ Make tests shorter
★ Make tests more accurate
★ Provide better feedback to students
★ Deliver securely

PSYCHOMETRIC ROADMAP

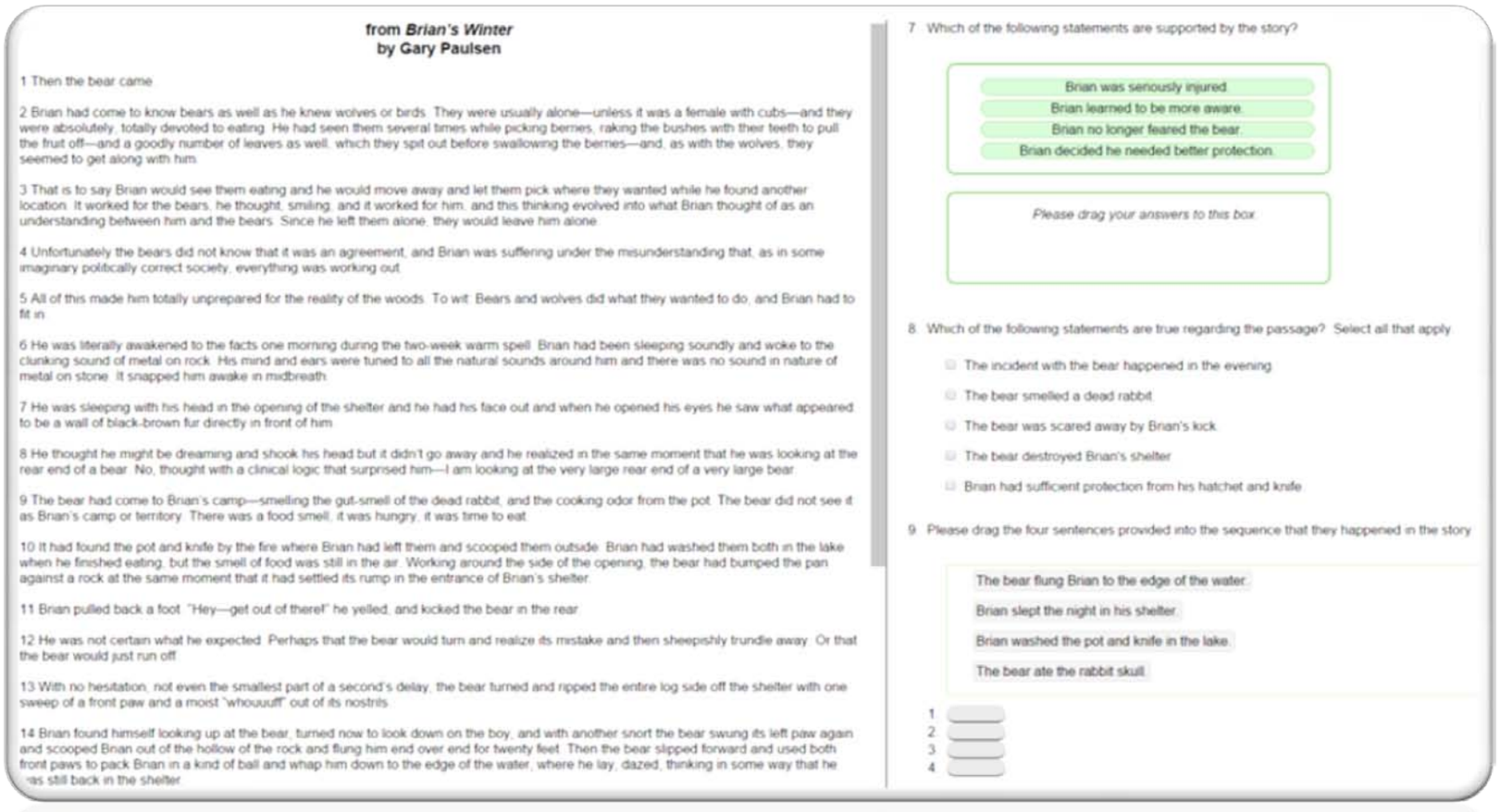
COMPUTERIZED ADAPTIVE TESTING (CAT)

- Reduces test time by 50% or more, which means a lot across hundreds of thousands of examinees
- More engaging test
- Better security
- Increased fairness
- Greater control of score precision/reliability
- Immediate score reporting
- Can also do LOFT



PSYCHOMETRIC ROADMAP

- Tech enhanced items
  - Unlike most providers, ours are designed with psychometrics in mind, not just flashy UI for students
- Goal: more accurate scores with fewer items



from *Brian's Winter*
by Gary Paulsen

1 Then the bear came.

2 Brian had come to know bears as well as he knew wolves or birds. They were usually alone—unless it was a female with cubs—and they were absolutely, totally devoted to eating. He had seen them several times while picking berries, raking the bushes with their teeth to pull the fruit off—and a goodly number of leaves as well, which they spit out before swallowing the berries—and, as with the wolves, they seemed to get along with him.

3 That is to say Brian would see them eating and he would move away and let them pick where they wanted while he found another location. It worked for the bears, he thought, smiling, and it worked for him, and this thinking evolved into what Brian thought of as an understanding between him and the bears. Since he left them alone, they would leave him alone.

4 Unfortunately the bears did not know that it was an agreement, and Brian was suffering under the misunderstanding that, as in some imaginary politically correct society, everything was working out.

5 All of this made him totally unprepared for the reality of the woods. To wit: Bears and wolves did what they wanted to do, and Brian had to fit in.

6 He was literally awakened to the facts one morning during the two-week warm spell. Brian had been sleeping soundly and woke to the clunking sound of metal on rock. His mind and ears were tuned to all the natural sounds around him and there was no sound in nature of metal on stone. It snapped him awake in midbreath.

7 He was sleeping with his head in the opening of the shelter and he had his face out and when he opened his eyes he saw what appeared to be a wall of black-brown fur directly in front of him.

8 He thought he might be dreaming and shook his head but it didn't go away and he realized in the same moment that he was looking at the rear end of a bear. No, thought with a clinical logic that surprised him—I am looking at the very large rear end of a very large bear.

9 The bear had come to Brian's camp—smelling the gut-smell of the dead rabbit, and the cooking odor from the pot. The bear did not see it as Brian's camp or territory. There was a food smell, it was hungry, it was time to eat.

10 It had found the pot and knife by the fire where Brian had left them and scooped them outside. Brian had washed them both in the lake when he finished eating, but the smell of food was still in the air. Working around the side of the opening, the bear had bumped the pan against a rock at the same moment that it had settled its rump in the entrance of Brian's shelter.

11 Brian pulled back a foot. "Hey—get out of there!" he yelled, and kicked the bear in the rear.

12 He was not certain what he expected. Perhaps that the bear would turn and realize its mistake and then sheepishly trundle away. Or that the bear would just run off.

13 With no hesitation, not even the smallest part of a second's delay, the bear turned and ripped the entire log side off the shelter with one sweep of a front paw and a moist "whouuuff" out of its nostrils.

14 Brian found himself looking up at the bear, turned now to look down on the boy, and with another snort the bear swung its left paw again and scooped Brian out of the hollow of the rock and flung him end over end for twenty feet. Then the bear slipped forward and used both front paws to pack Brian in a kind of ball and whap him down to the edge of the water, where he lay, dazed, thinking in some way that he was still back in the shelter.

7. Which of the following statements are supported by the story?

- Brian was seriously injured.
- Brian learned to be more aware.
- Brian no longer feared the bear.
- Brian decided he needed better protection.

Please drag your answers to this box.

8. Which of the following statements are true regarding the passage? Select all that apply.

- ☐ The incident with the bear happened in the evening.
- ☐ The bear smelled a dead rabbit.
- ☐ The bear was scared away by Brian's kick.
- ☐ The bear destroyed Brian's shelter.
- ☐ Brian had sufficient protection from his hatchet and knife.

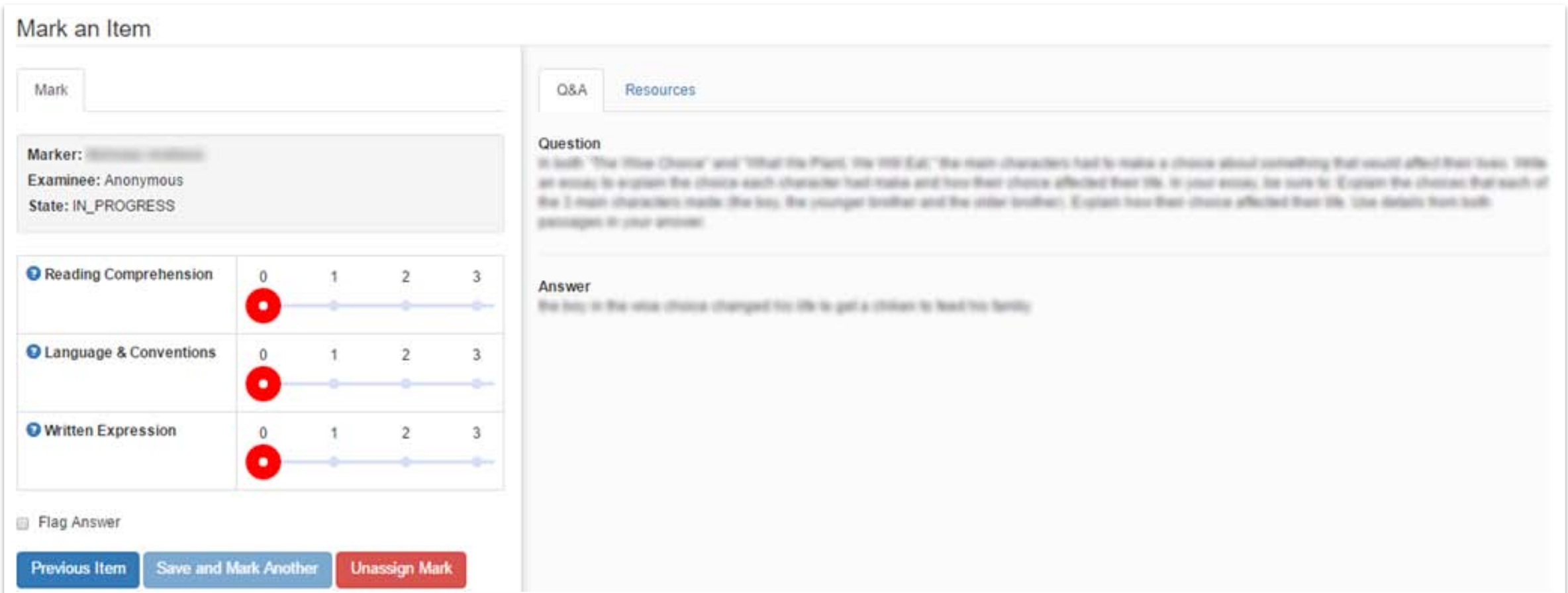
9. Please drag the four sentences provided into the sequence that they happened in the story.

- The bear flung Brian to the edge of the water.
- Brian slept the night in his shelter.
- Brian washed the pot and knife in the lake.
- The bear ate the rabbit skull.

1. ____
2. ____
3. ____
4. ____

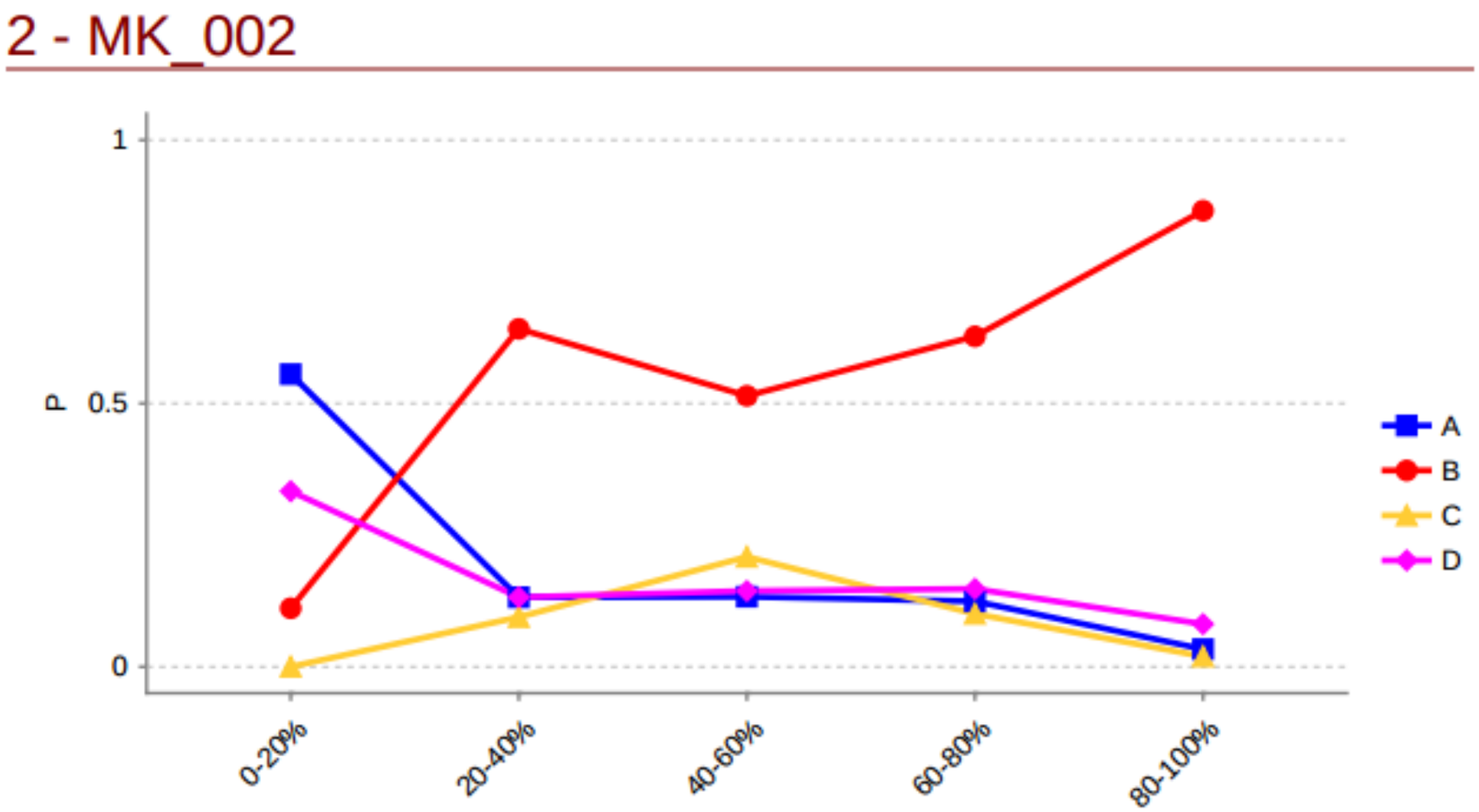
PSYCHOMETRIC ROADMAP

- **Essay marking with IRT**
- Not only do we have online marking, but it is integrated with rubric management, psychometrics, and IRT
- Goal: Save time and improve score precision
- Current client said 60% reduction



PSYCHOMETRIC ROADMAP

- Automated reporting and Iteman
  - 1980s? Not anymore!
  - Iteman is now *inside* FastTest; Xcalibre next
- Goal: Save psychometrician time, reduce chances of error, provide better feedback to SMEs



Percentile Group

Item Statistics

Key	Scored	Options	Subscores	N	P	Total Rpbis	Mean	Flags
B	Yes	4	Initial Bank	1234	0.323	0.637	0.323	Low P

Option Statistics

Jason's mother gives him $300 to start a savings account at the bank. Jason earns $250 per month from his part-time job, and he puts half of this into the savings account. How much money does the account contain after 6 months, if there is no interest earned?

Option	Text	N	Prop	Rpbis	Weight
A	$750	68	0.055	0.103	0
B	**$1,050**	**398**	**0.323**	**0.637**	**1**
C	$1,300	67	0.054	0.099	0
D	$1,800	84	0.068	0.160	0
Omit		617	0.500	0.000	
Not Admin		577			

PSYCHOMETRIC ROADMAP

- SIFT - we will flag problem locations and students using ~20 scientifically supported indices from the literature
- Goal: Security is actually an important component of score validity but is often overlooked. We will help you maintain security and report to stakeholders.

	A	B	C	D	E	F	G	H	I	J
1	City	Examinees	Pass N	Pass rate	Std Pass rate	Mean score (s	Mean score (a	Mean BBR flag	Mean BBO flag	Mean G2 flags
2	Baldwin Park	302	271	89.735	-0.007	62.841	62.841	3.98	0.129	4.642
3	Miami	290	276	95.172	0.219	65.576	65.576	8.948	0.866	46.703
4	blank	225	152	67.556	-0.925	57.24	57.24	1.871	0.244	7.653
5	Los Angeles	145	143	98.621	0.361	67.366	67.366	1.297	0.028	7.903
6	Orlando	91	83	91.209	0.054	64.44	64.44	0.89	0.132	3.824
7	North Miami	88	67	76.136	-0.57	59.011	59.011	0.943	0.011	1.398
8	Dallas	78	64	82.051	-0.325	61.5	61.5	1.141	0.051	1.333
9	Oklahoma City	51	42	82.353	-0.312	63.922	63.922	0.118	0	0.275
10	Denver	48	44	91.667	0.073	64.271	64.271	0.187	0	0.583

PSYCHOMETRIC ROADMAP

Item Review Workflow: Input like Bloom's or Angoff

Management of pilot items and forms

VALIDITY

EFFICIENCY

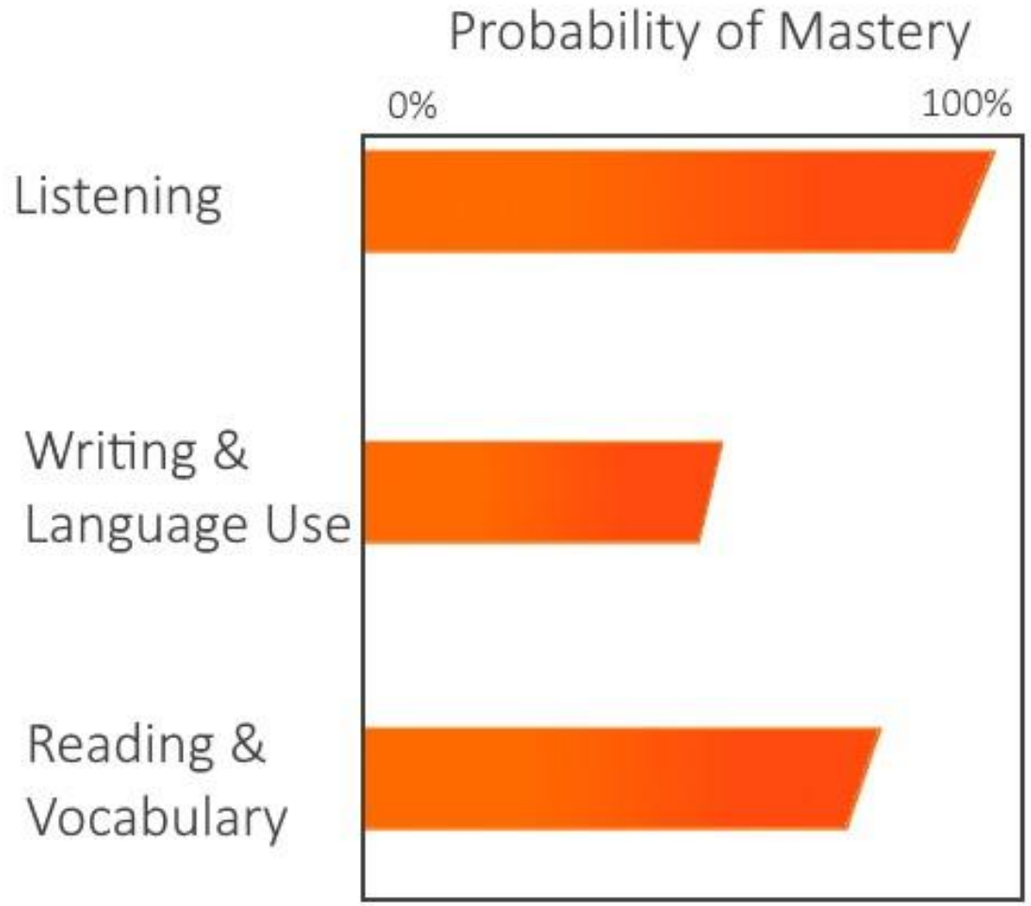
Assemble parallel forms with IRT or CTT

Implement IRT to establish common equated scale

PSYCHOMETRIC ROADMAP

Future ideas: more automation, AI, and advanced psychometrics

- ✓ Real-time suggestions in item development
  - ✓ Example: we notify the author if the MC key is 25% longer than the distractors, which often happens
- ✓ Automated reports for equating
  - ✓ IRT rather than Tucker/Levine?
- ✓ Cognitive diagnostic models
  - ✓ Developed to provide better feedback to students
- ✓ More advanced LOFT
  - ✓ Balance by P or TIF
- ✓ Tracking historical item statistics
- ✓ Automated statistic uploading from online Iteman



PREVIOUS SUCCESS - United Arab Emirates

FOUR EXAMPLES FROM HAVING DONE THIS MANY TIMES BEFORE.

PREVIOUS SUCCESS - United Arab Emirates

No items, no existing program, no experience

Practice Tests
Expose Infrastructure
Student Experience

Batting 1000%
Co-presented Findings at ATP

Slow rollout
First Teachers
Then High Tech Schools

Handling Teachers
Handling Students
Organic Growth

PREVIOUS SUCCESS - Project Lead the Way

Launching National STEM Testing

Infrastructure Issues
Web Filters, Caching

80k Tests per day
Servers didn't really notice

Train Schools
Train Teachers

Organic Growth
Manage Training
Manage Infrastructure

PREVIOUS SUCCESS - Iceland

Launch Online Testing
100% Online

New system for all
Could not roll out slowly
Demonstration Tests

"the test sessions proved extremely positive and left teachers and students satisfied with the experience."

"the distribution of the demo tests was another important milestone and one of the reason the September sessions went as well as they did."

"It was enjoyable to witness since the beginning of the process it was unclear whether this achievement could be achieved in the short time that was given."

PREVIOUS SUCCESS - Charles County

Migrated to New System

60% reduction in mark time
On time Launch
Co-

Celebrating 4 Years of successful delivery

Pilot Testing
Launch
Online Marking
Tech Enhanced Items

"It was enjoyable to witness since the beginning of the process it was unclear whether this achievement could be achieved in the short time that was given."

Thank
you!