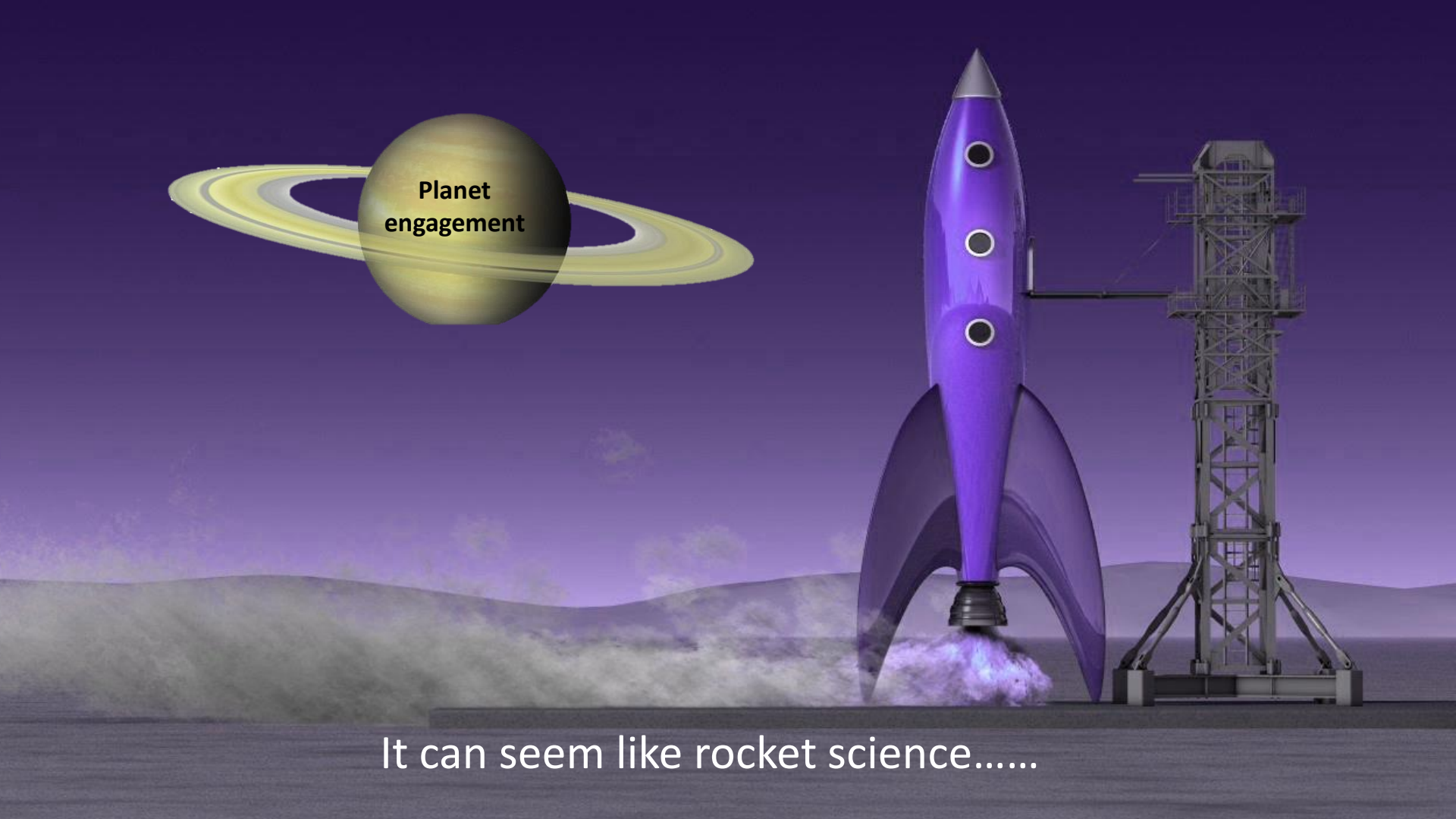
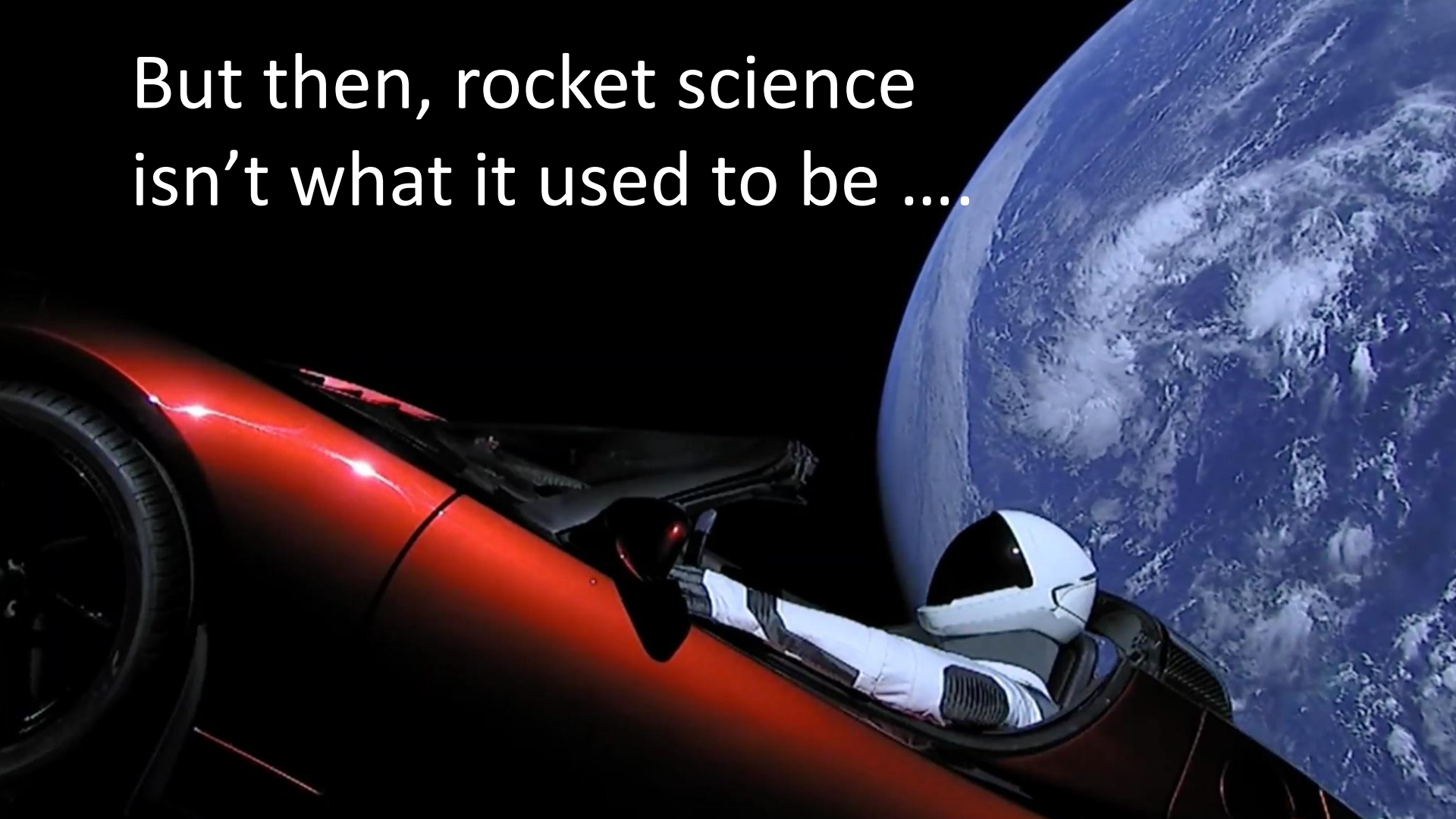

BIG
Integration
DATA



It can seem like rocket science……

But then, rocket science isn’t what it used to be ….



PREVIOUS CHALLENGES

Every
Characteristic
Event
Action
Preference
Stressor
Contact

1.
Sheer Volume

At any
Point in time

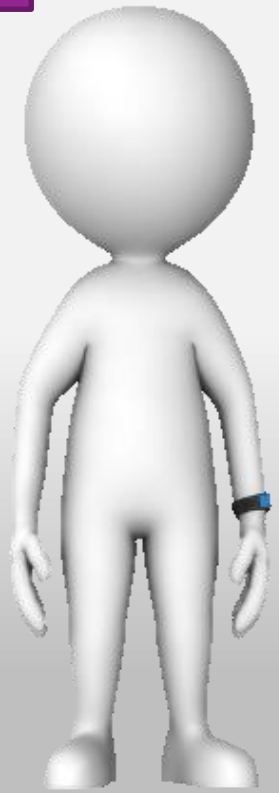
For
Every
Person

PREVIOUS CHALLENGES

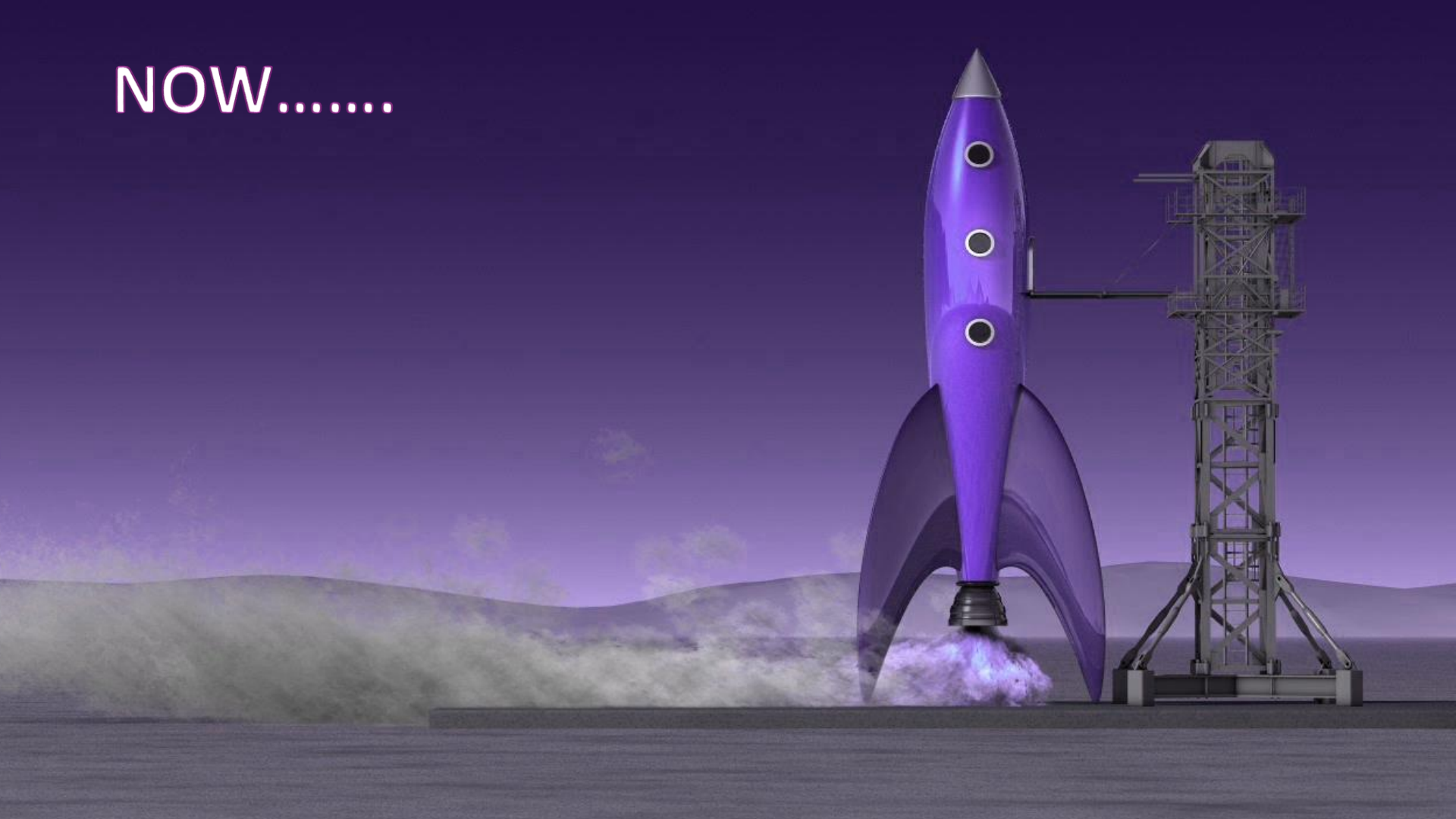
2.
Complexity

PREVIOUS CHALLENGES

3.
Time



NOW…….



QUICK, STANDARD IMPORTING

Client specific elements:

Surveys, work engagement, consumer engagement, ADI (social determinants), program participation, sales, performance, outcomes

Core elements:

Payroll, medical, STD, LTD, WC demographics, health risks, jobs, turnover, promotion

Initial integrated risk analysis:

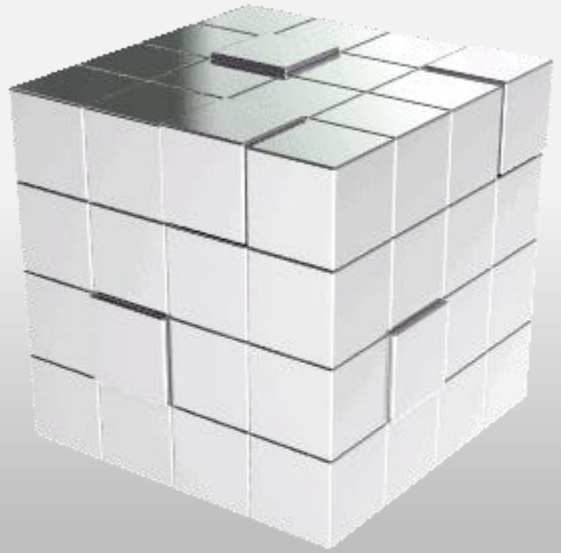
Basic medical, absence, injury

FLEXIBLE, USEABLE STRUCTURE

Longitudinal
Automated lags
Cumulative
Relative time frames
Pattern-based
Clinically independent
Family-level
Person-level
Business unit-level

Literally millions of potential combinations available in online reporting

AND ACTIONABLE INSIGHTS



Focus on Key Issues Happening Now

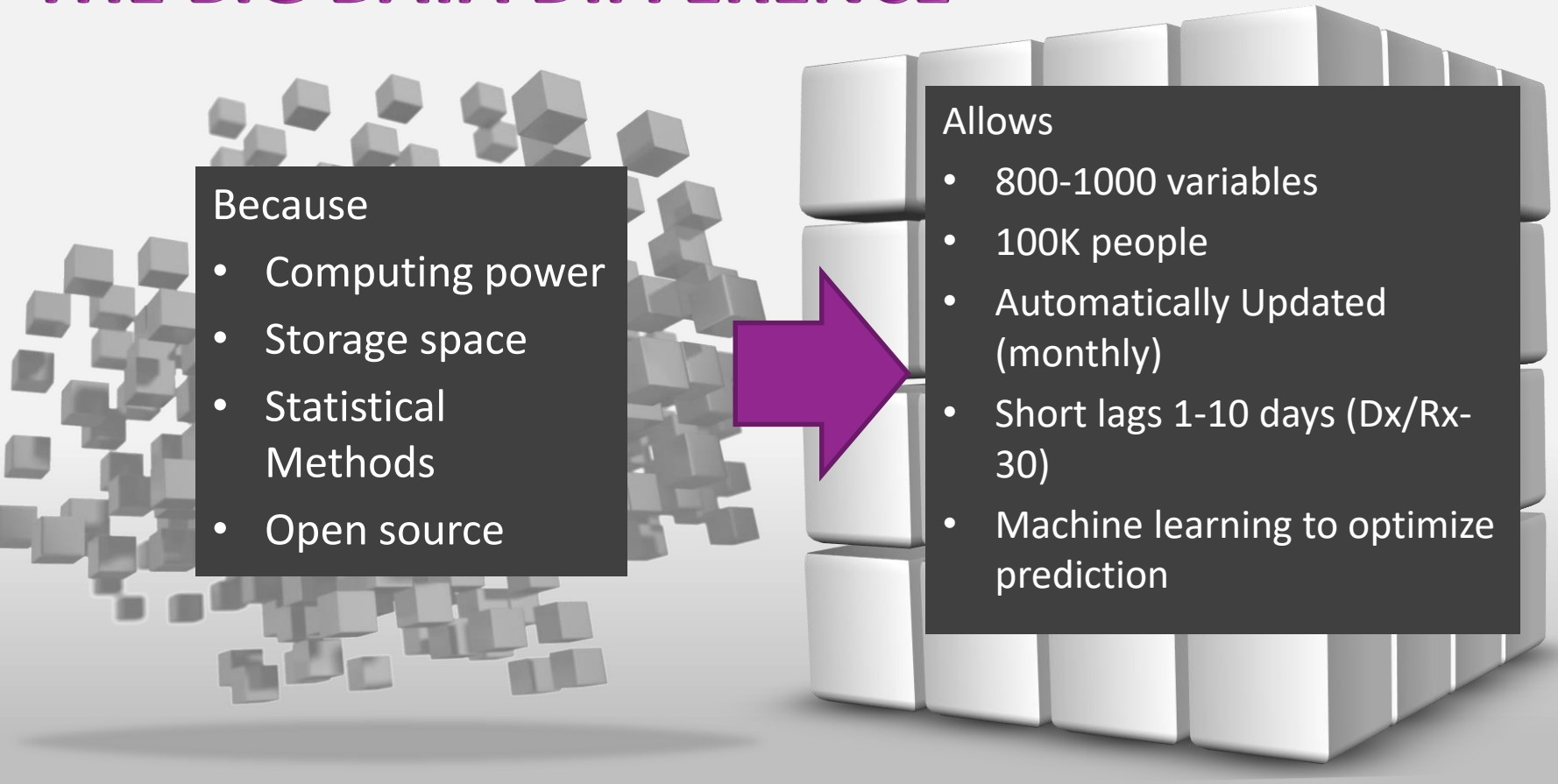
- **What is happening**
- **Where it is happening**
- **Who is at risk**
- **Linked to effective intervention**

Real time, not retrospective

THE BIG DATA DIFFERENCE

Because

- Computing power
- Storage space
- Statistical Methods
- Open source



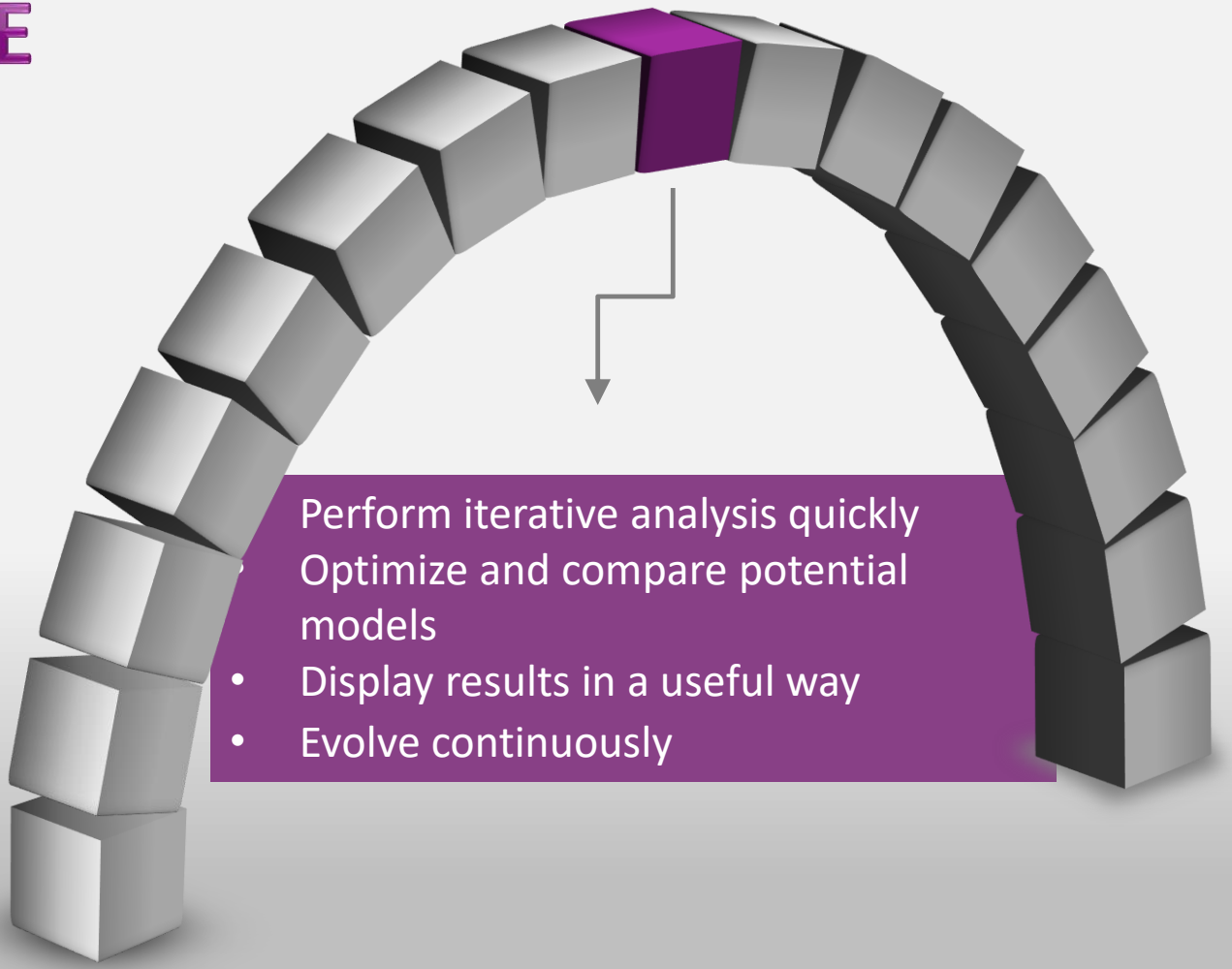
Allows

- 800-1000 variables
- 100K people
- Automatically Updated (monthly)
- Short lags 1-10 days (Dx/Rx-30)
- Machine learning to optimize prediction

THIS DECADE

New Methods

- Process large numbers of variables
- Process variables that are related to each other



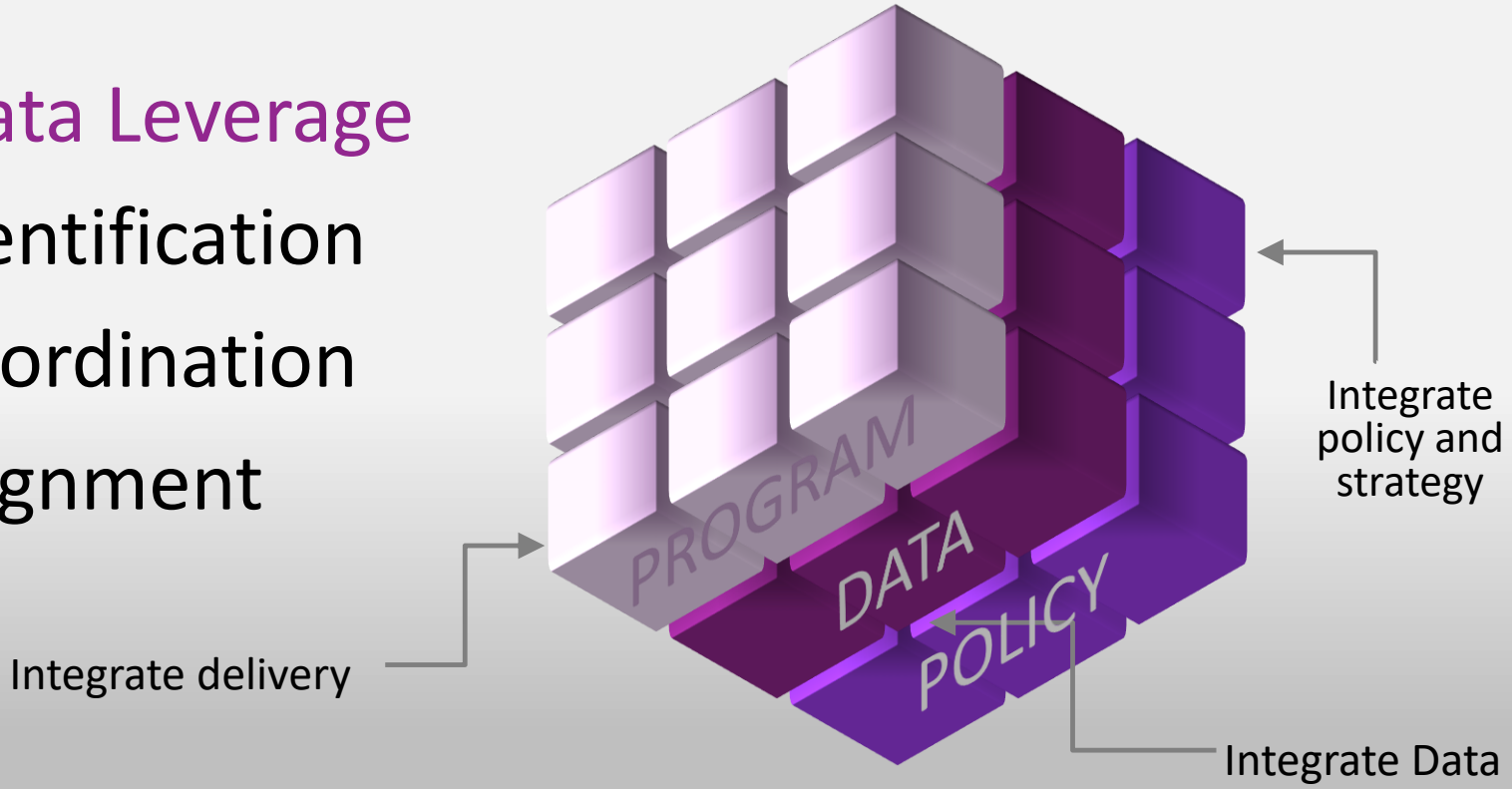
- Perform iterative analysis quickly
- Optimize and compare potential models
- Display results in a useful way
- Evolve continuously

$$Y = X_{\blacksquare\blacksquare} + X_{\blacksquare\blacksquare}$$

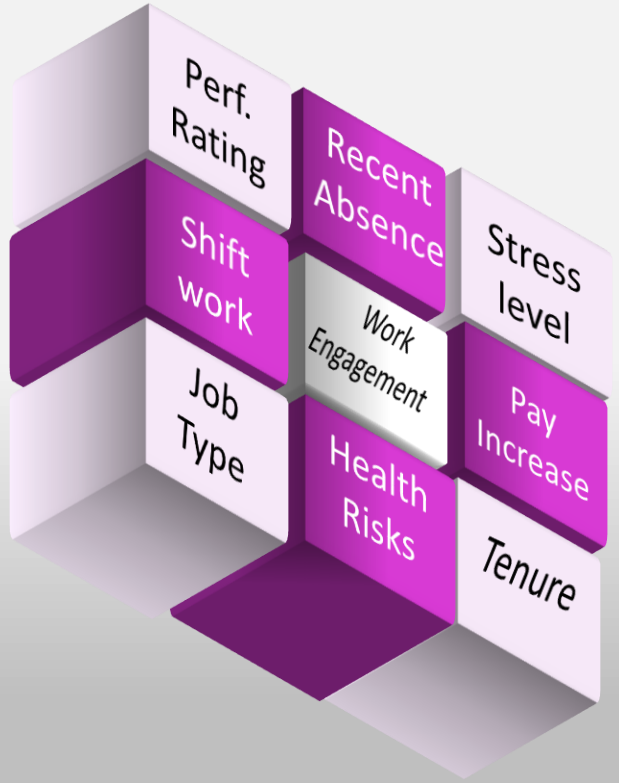
ENGAGEMENT X 3

Big Data Leverage

1. Identification
2. Coordination
3. Alignment



PREDICTING IMMINENT TURNOVER

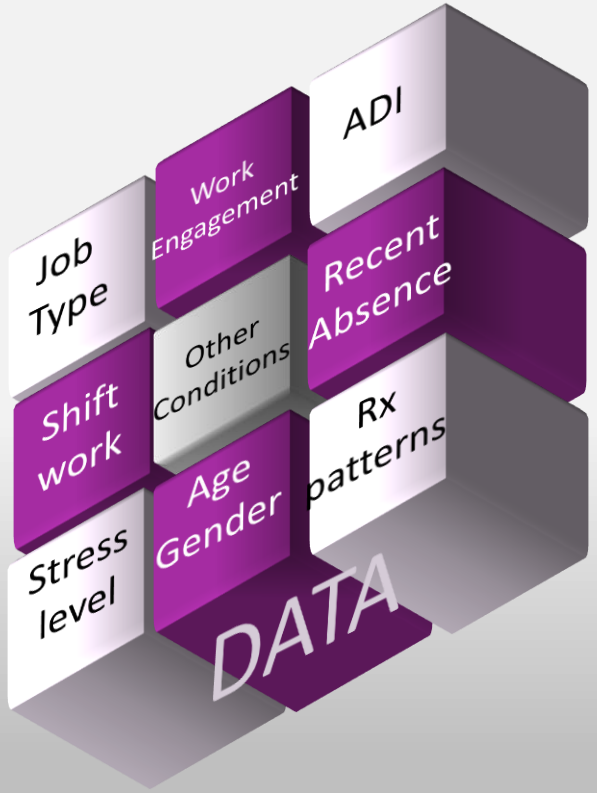


Depending on circumstances

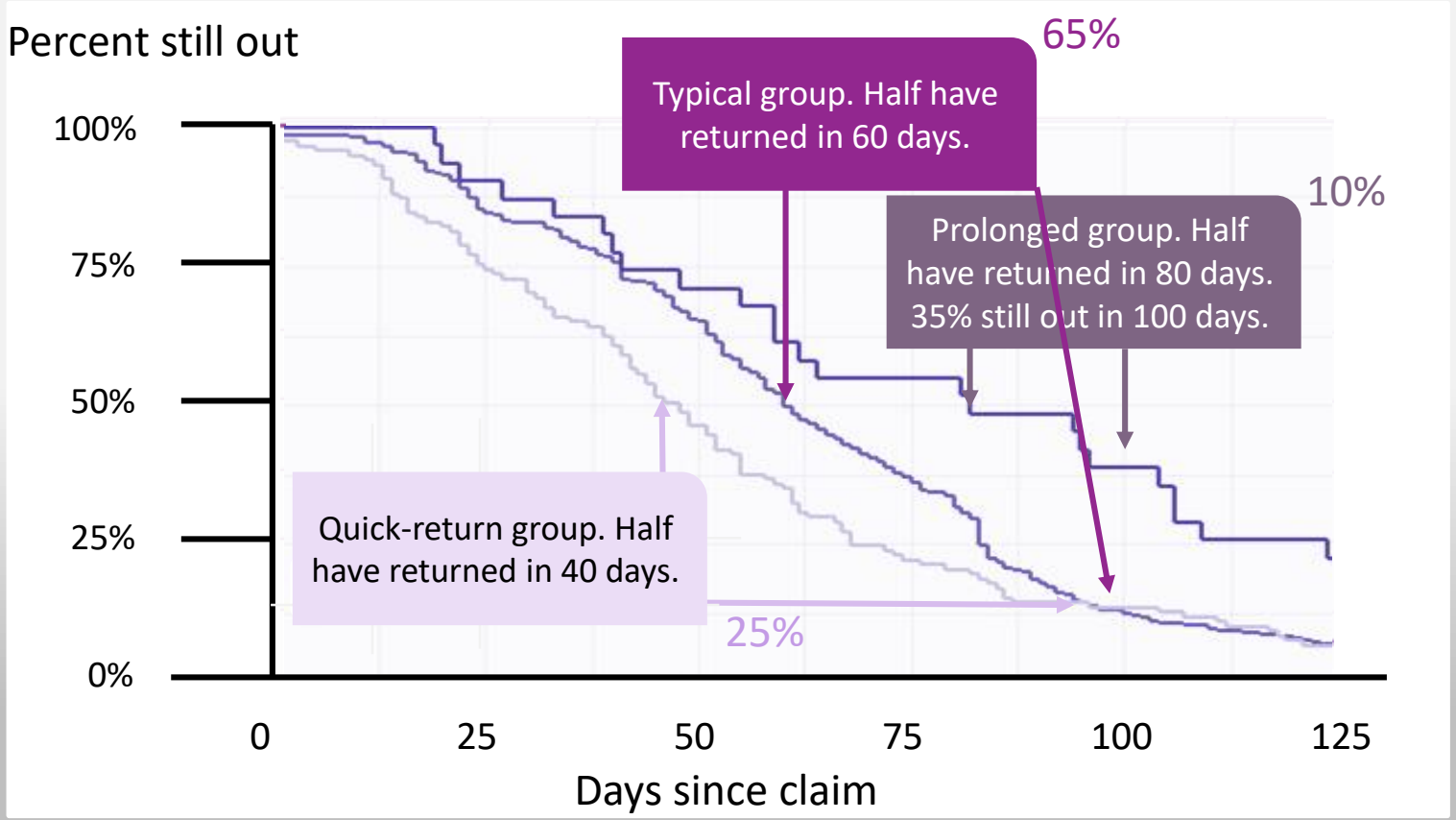
Turnover likelihood ranges from

0.00001% — 94%

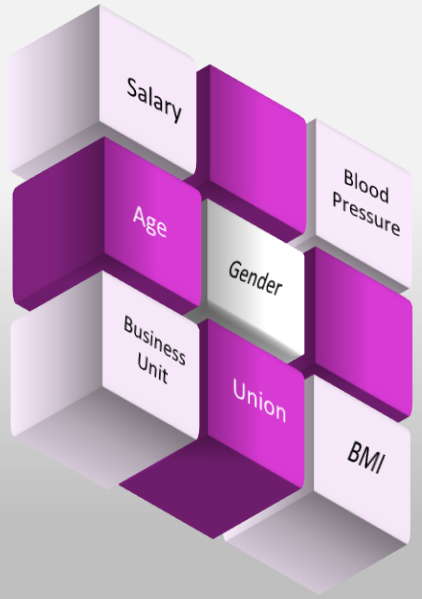
PREDICTING MUSCULOSKELETAL STD DURATION

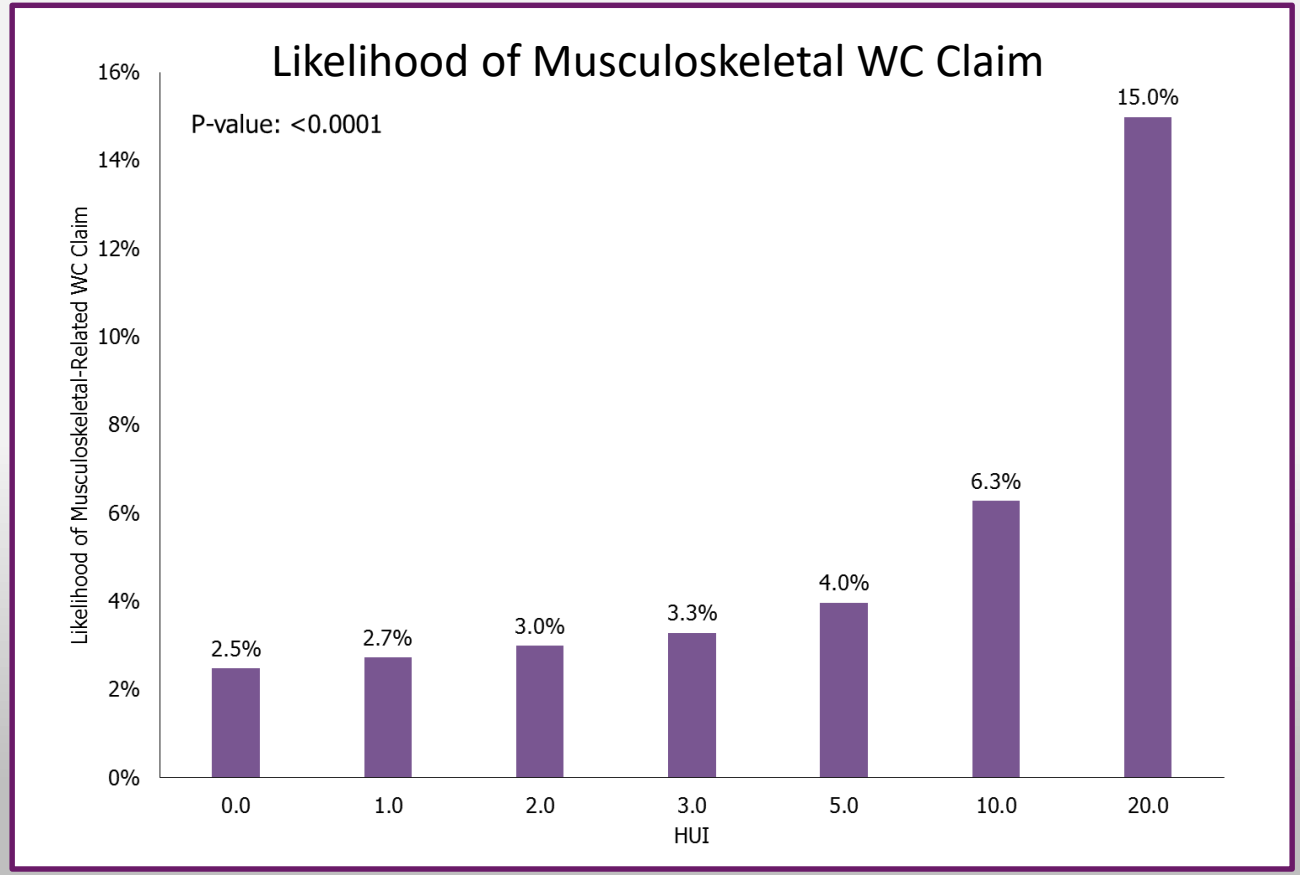


DOUBLE THE MEDIAN DURATION



Human Capital Risk





Health Utilization Index – Work Partners HCMS

MENTAL HEALTH

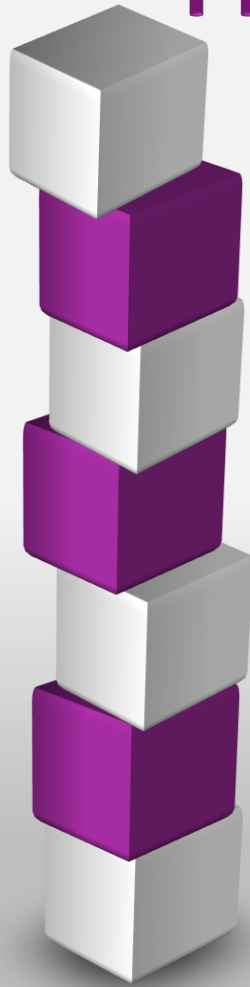
Why predict need for services?

5% of group health spend.

But spread across 34% of people…

Who generate 74% of all integrated costs.

PREDICTING MENTAL HEALTH



STD

Workers Comp

Leave

Schedule, job, engagement

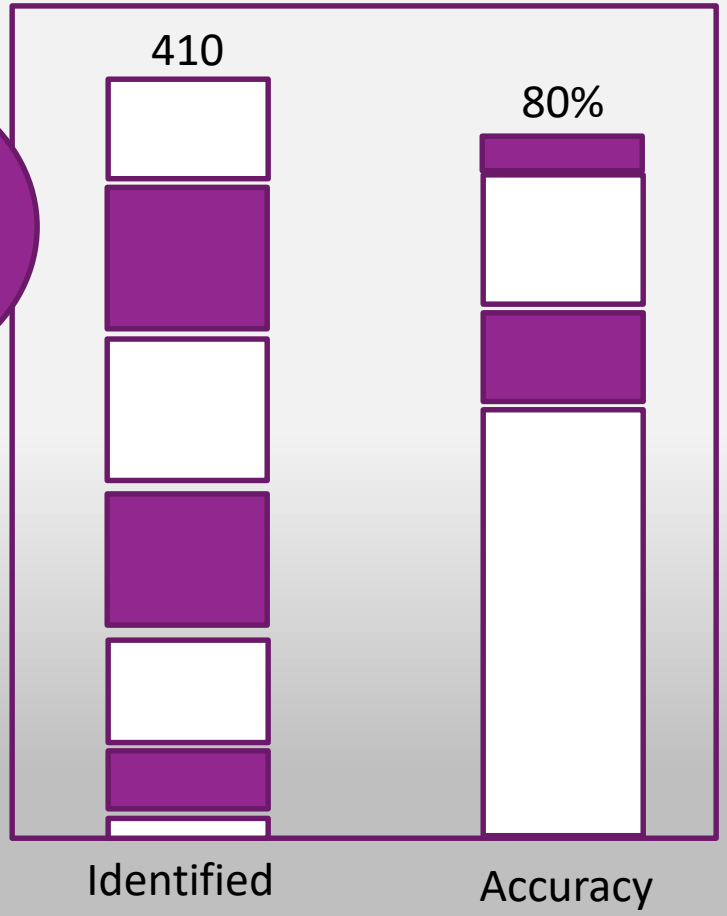
Historic HRA & Risk Changes

Recent HRA

Medical claims and Rx

Each month:

35 new cases.
30 accurate.



It’s the combination of integrated factors….

That predict:
Injury/accidents
Turnover
Absence
Performance...

Almost anything

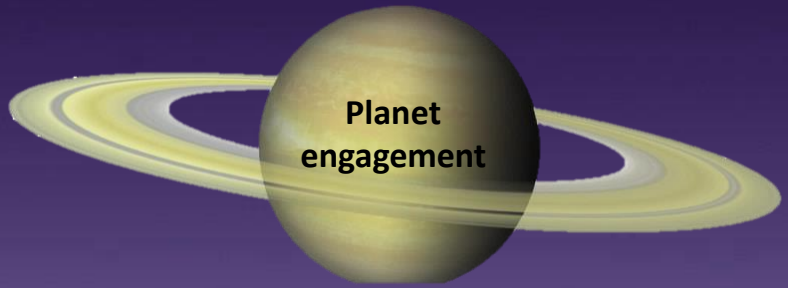
SUMMARY

Integration of data

- More doable than ever
- Finds different people
- More accurate
- More timely

PART 2: INTEGRATED SERVICES

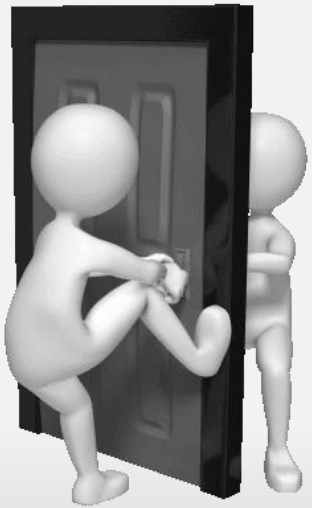
Making it easy.



The real challenge……?

Engagement has been…

Push



Pull

Scare

Surprise

or…

sneak

bribe

shame

We needed another way

UPMC LIFE CHANGING MEDICINE

UPMC *Insurance Services Division*

Workers' Compensation

TPA & Fully Insured

Absence Management

Leave & STD Services

On-site Services

Employee Health & Acute Care Clinics

*Life*Solutions

EAP & Health Management Solutions

High Int. Cost Management

5% producing 50% of costs

Integration & Data Analytics

Data solutions HCMS

THREE POINTS

Integration at the program level

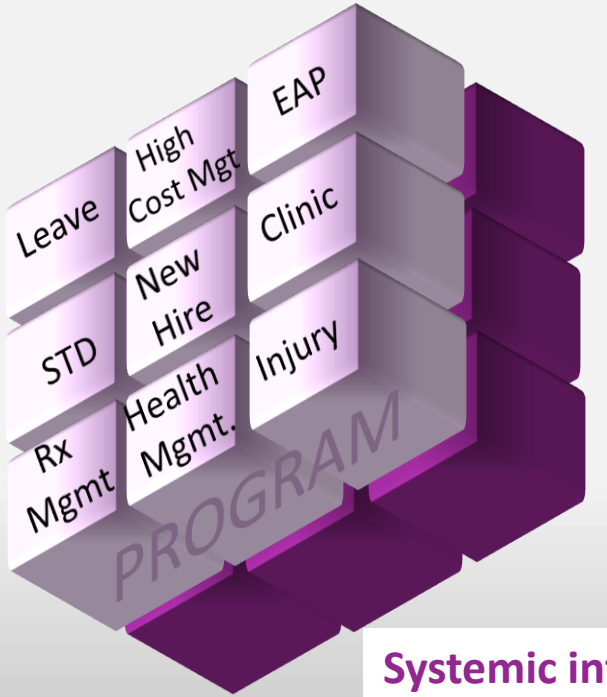
1. **It can be done.**
2. **Leverages existing contacts to dramatically improve engagement.**
3. **Improves health and business outcomes.**

INTEGRATION > COORDINATION

Who "touches" which contact point,

When does it happen?

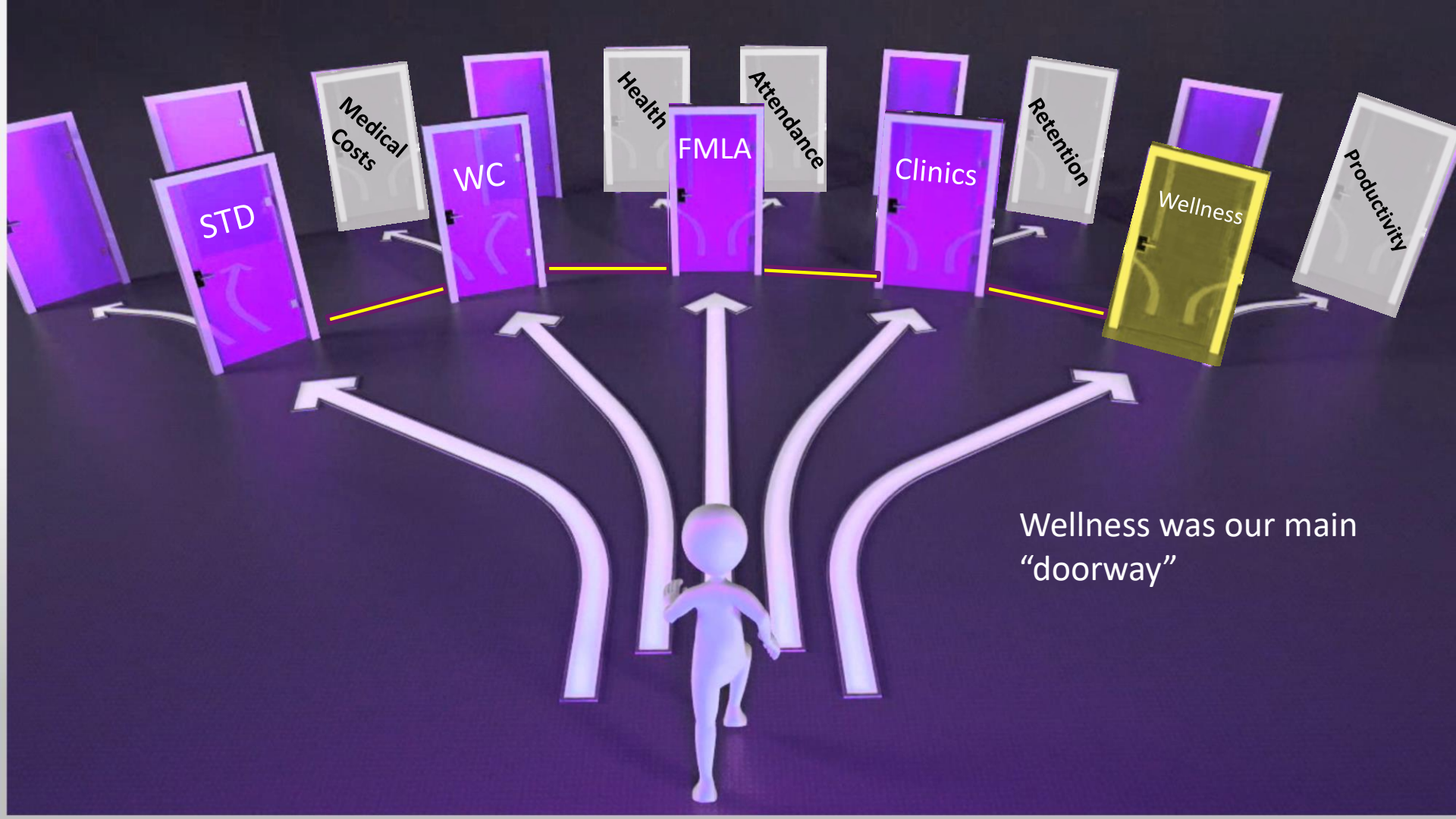
Which other contact might they benefit from?



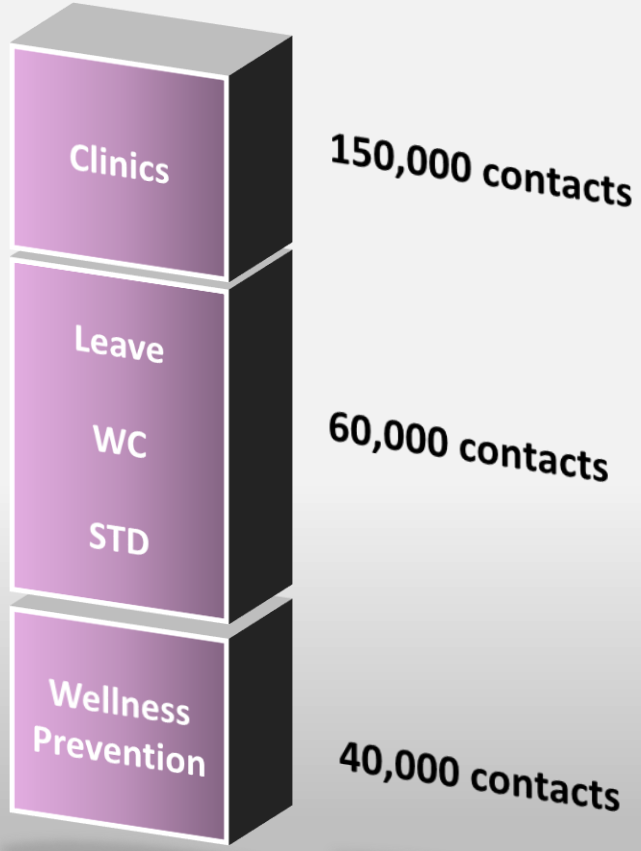
Fully Integrated Data

Systemic integration:
Flags and participation

Operational integration:
Training, support for cross- referrals


STD
Medical Costs
WC
Health
FMLA
Attendance
Clinics
Retention
Wellness
Productivity
Wellness was our main "doorway"

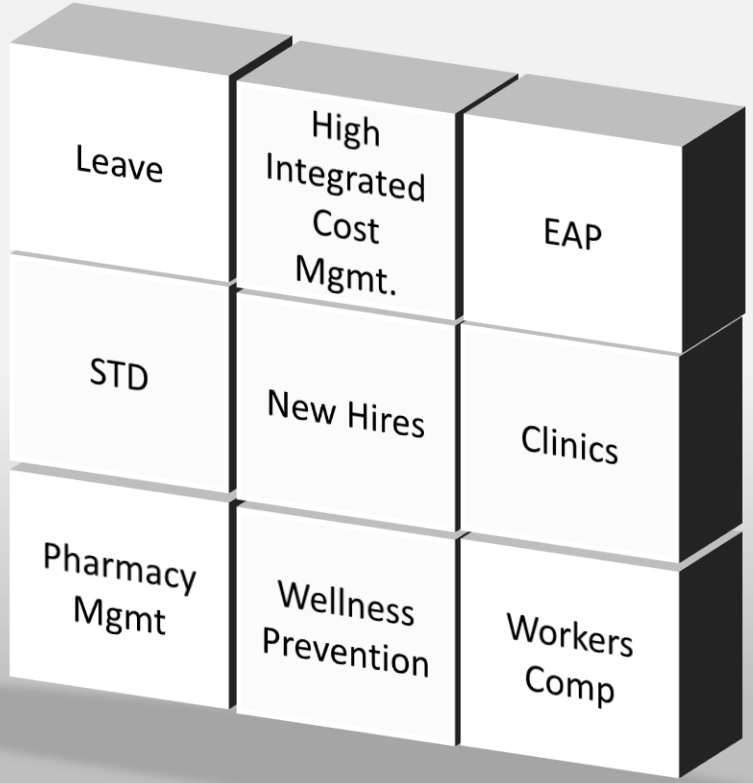
LEVERAGE EXISTING CONTACT POINTS

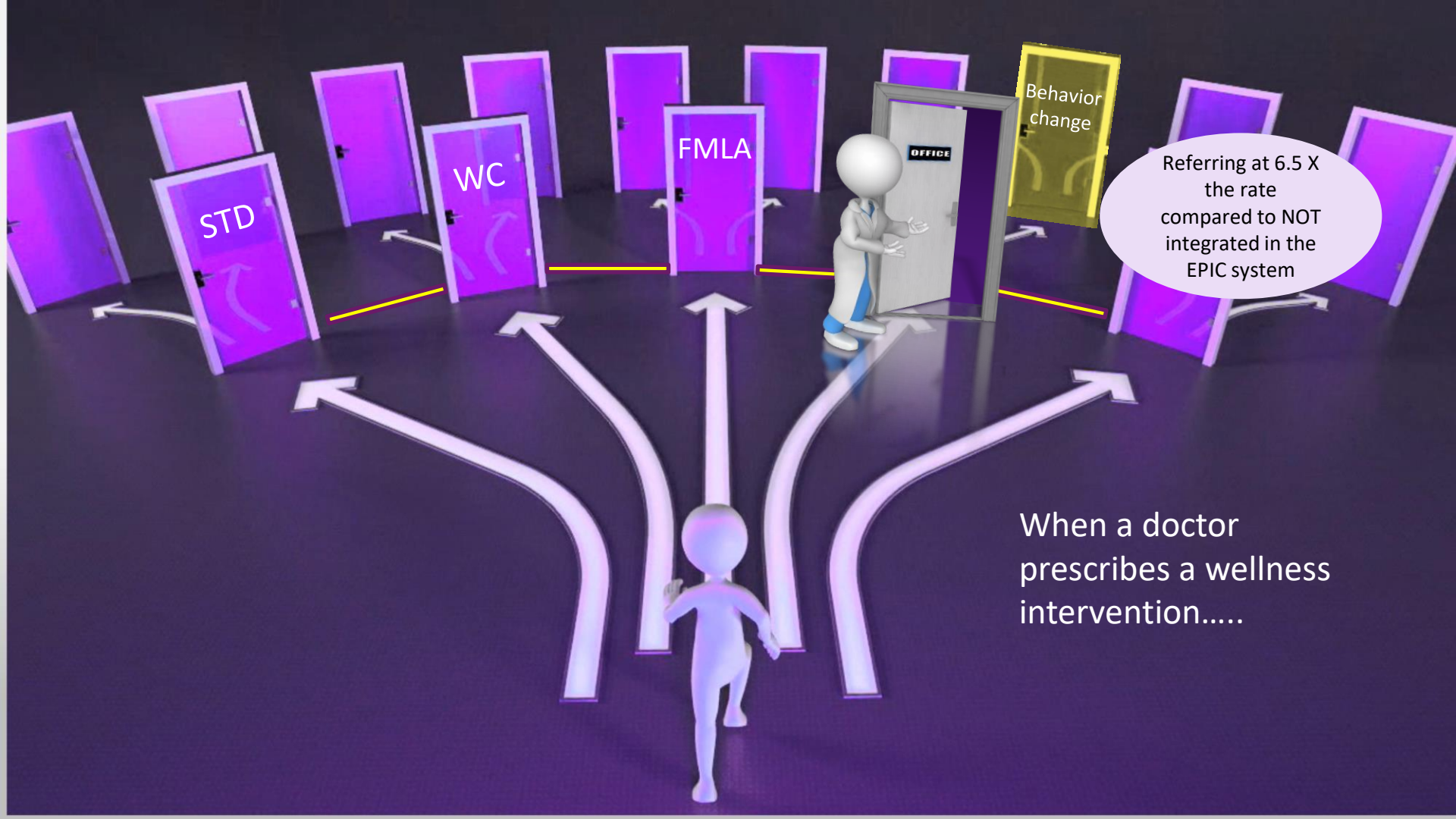


150,000 contacts

60,000 contacts

40,000 contacts

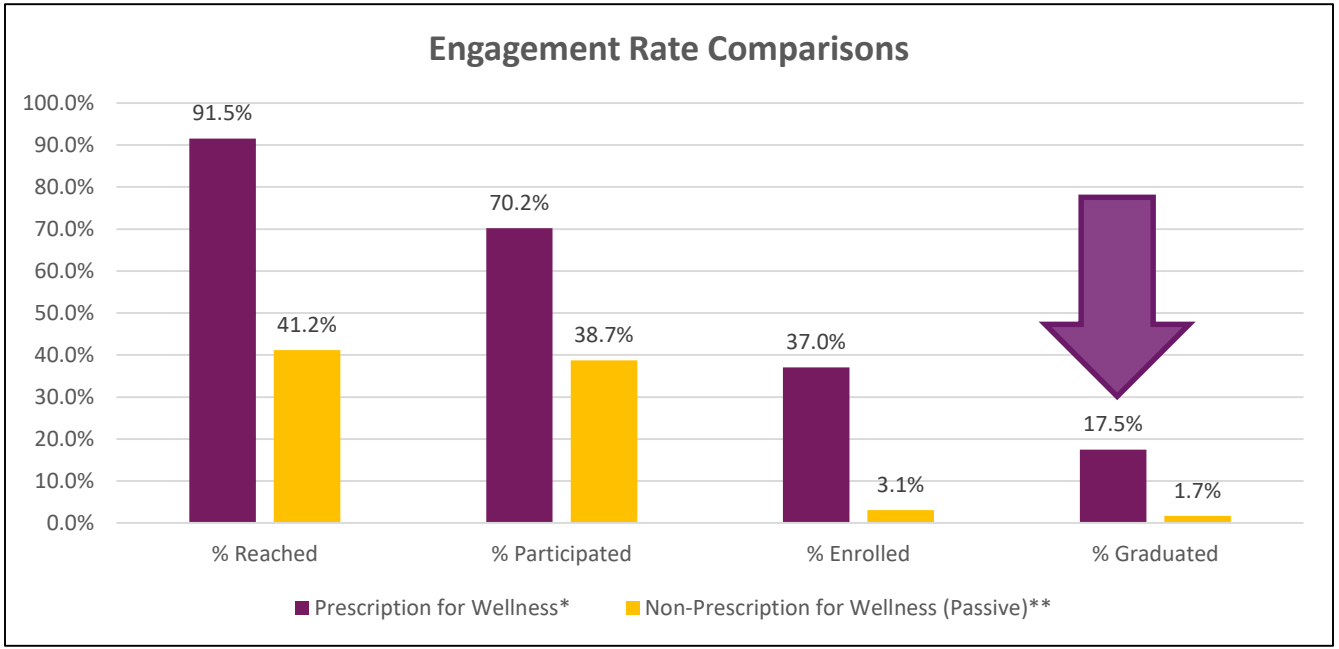



STD
WC
FMLA
Behavior change
OFFICE
Referring at 6.5 X the rate compared to NOT integrated in the EPIC system
When a doctor prescribes a wellness intervention…..

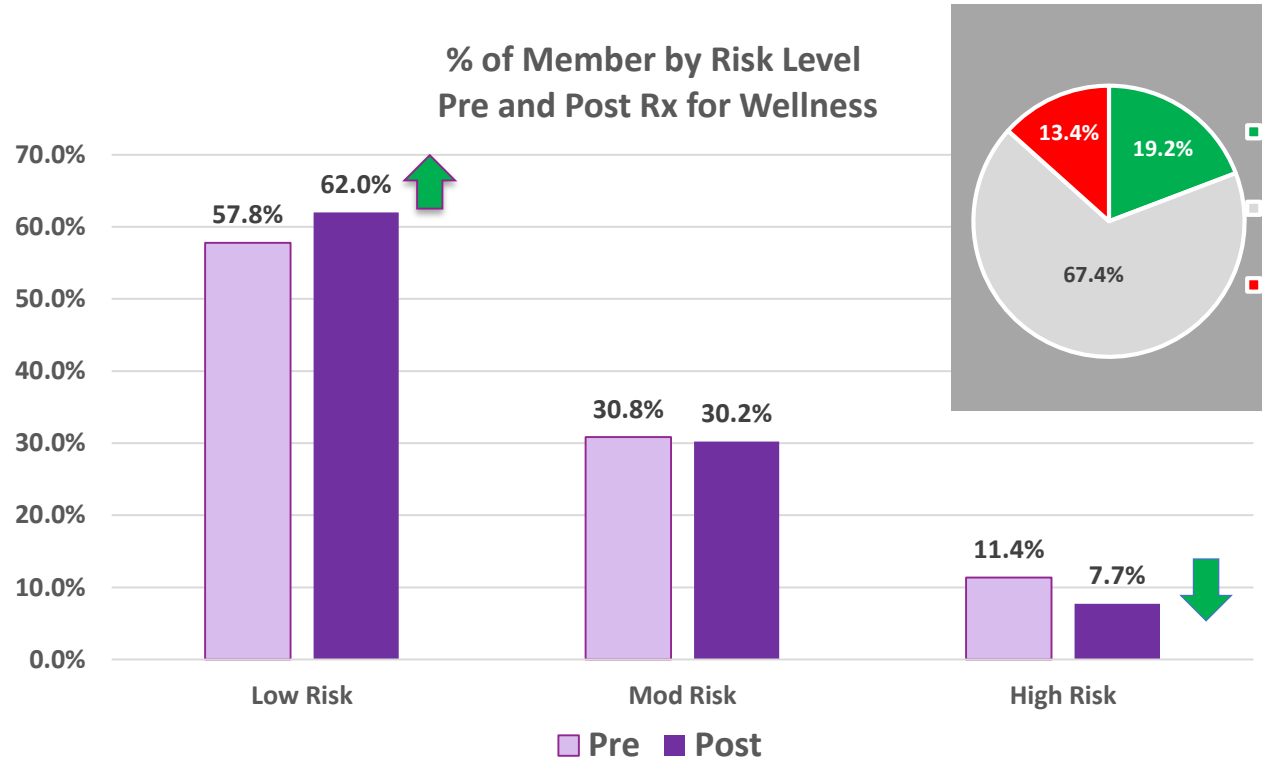
Example #1: Prescription (Rx) for Wellness

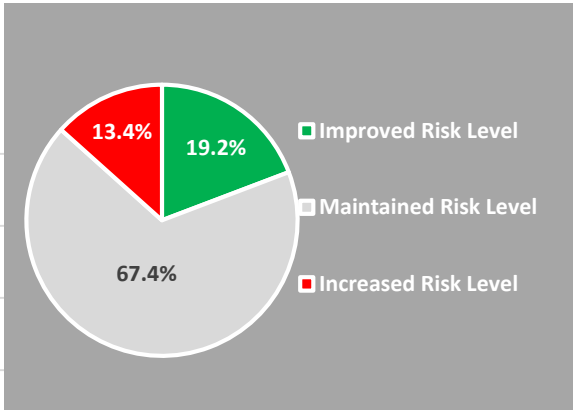
The Power of the White Coat

- Imbedded in computerized records (EPIC)
- A Rx creates expectation for follow-up and “filling” the order.



Example #1: Prescription (Rx) for Wellness



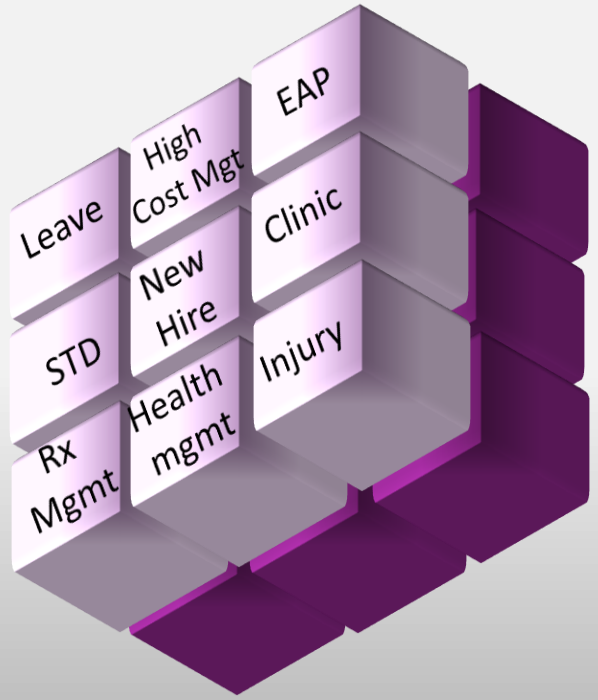


Health Risks Significantly Reduced:

- Poor Diet
- High BMI
- Tobacco Use
- Low Physical Activity
- Sick Days
- High Blood Pressure
- Poor Health Perception
- Seat Belt Usage

INTEGRATION OF SERVICE DELIVERY

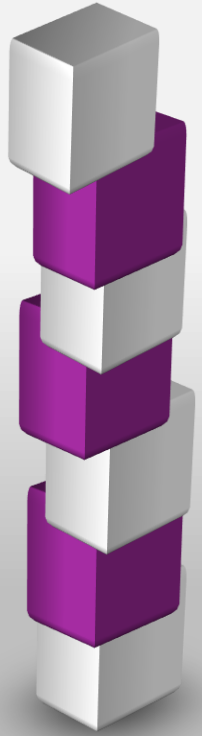
When all services, utilization and risks are integrated, referrals can be need-driven in real time.



Fully Integrated Data

THOSE IN NEED OF MENTAL HEALTH SUPPORT

Predicted with:



STD

Workers Comp

Leave

Schedule, job, engagement

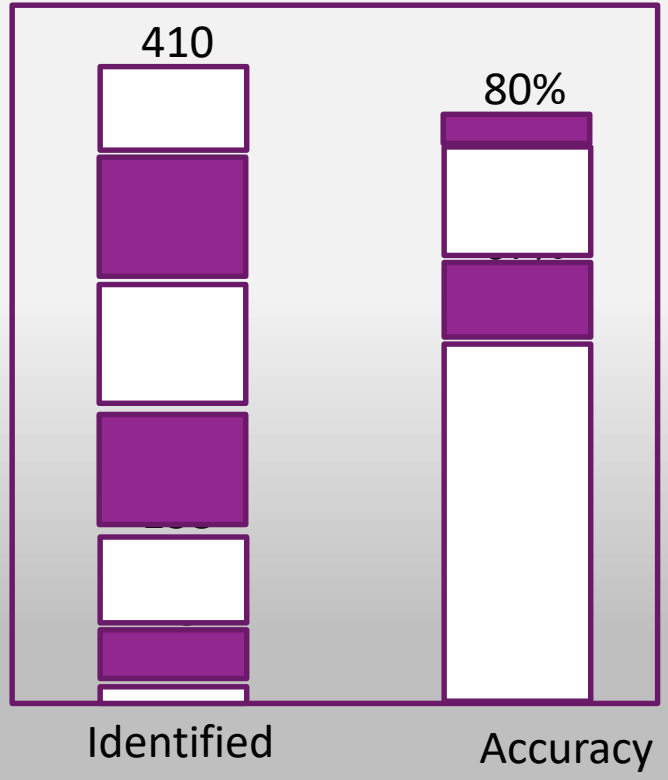
Historic HRA & Changes

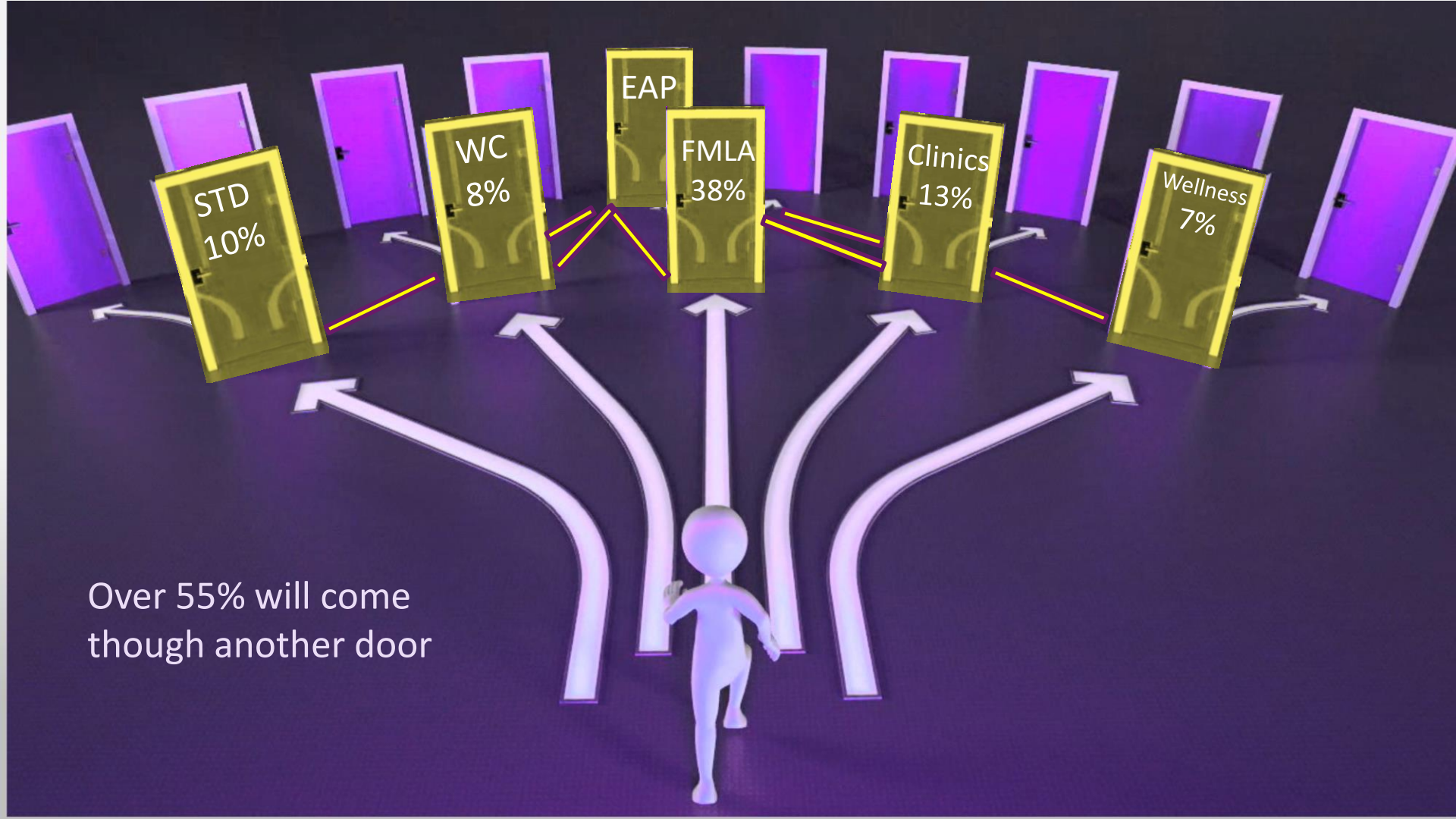
Recent HRA

Medical claims and Rx

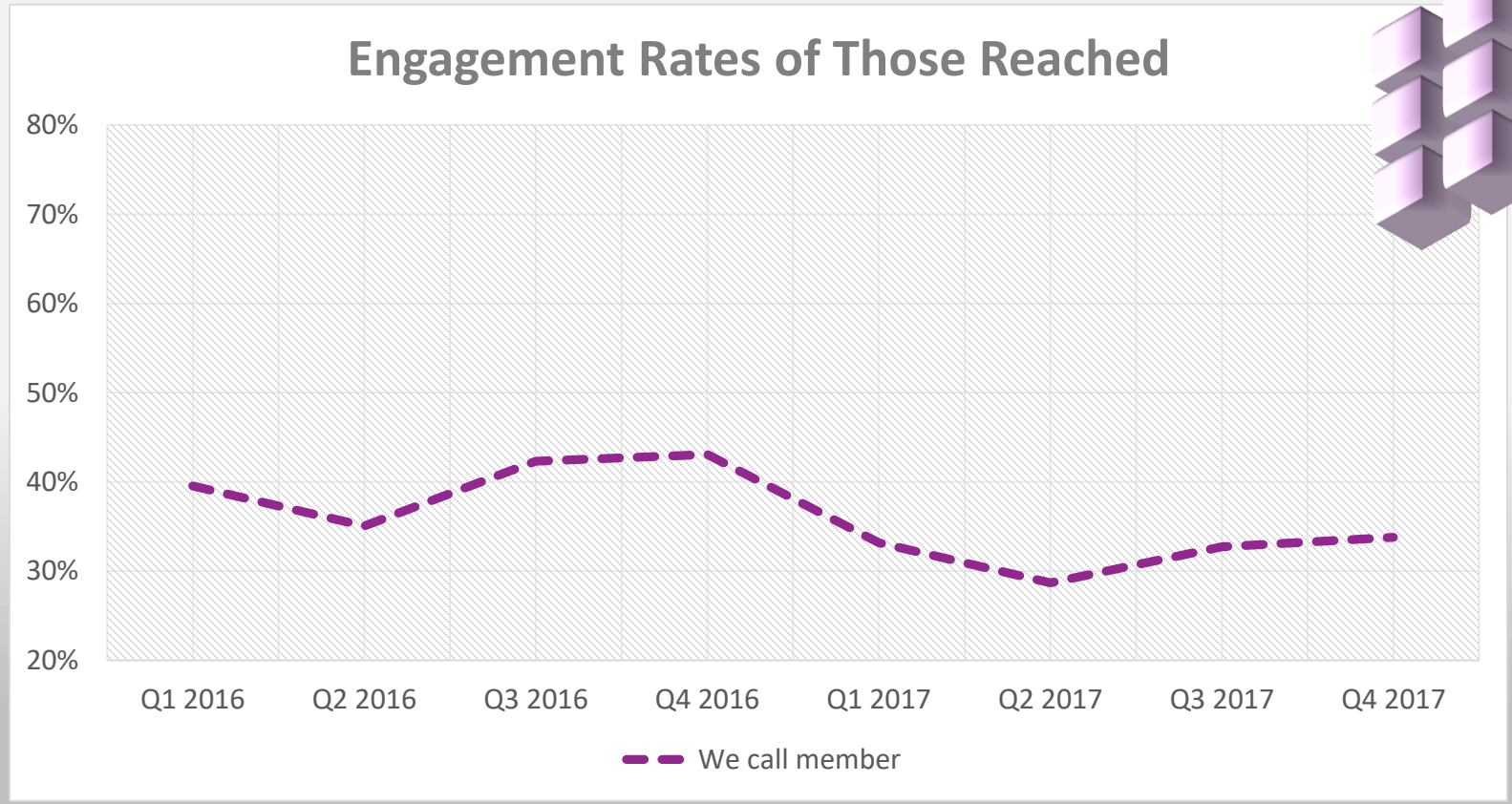
Each month:

35 new cases




STD
10%
WC
8%
EAP
FMLA
38%
Clinics
13%
Wellness
7%
Over 55% will come
though another door

EXAMPLE 2:
WHEN ALL PROGRAMS BEGIN TO CROSS REFER



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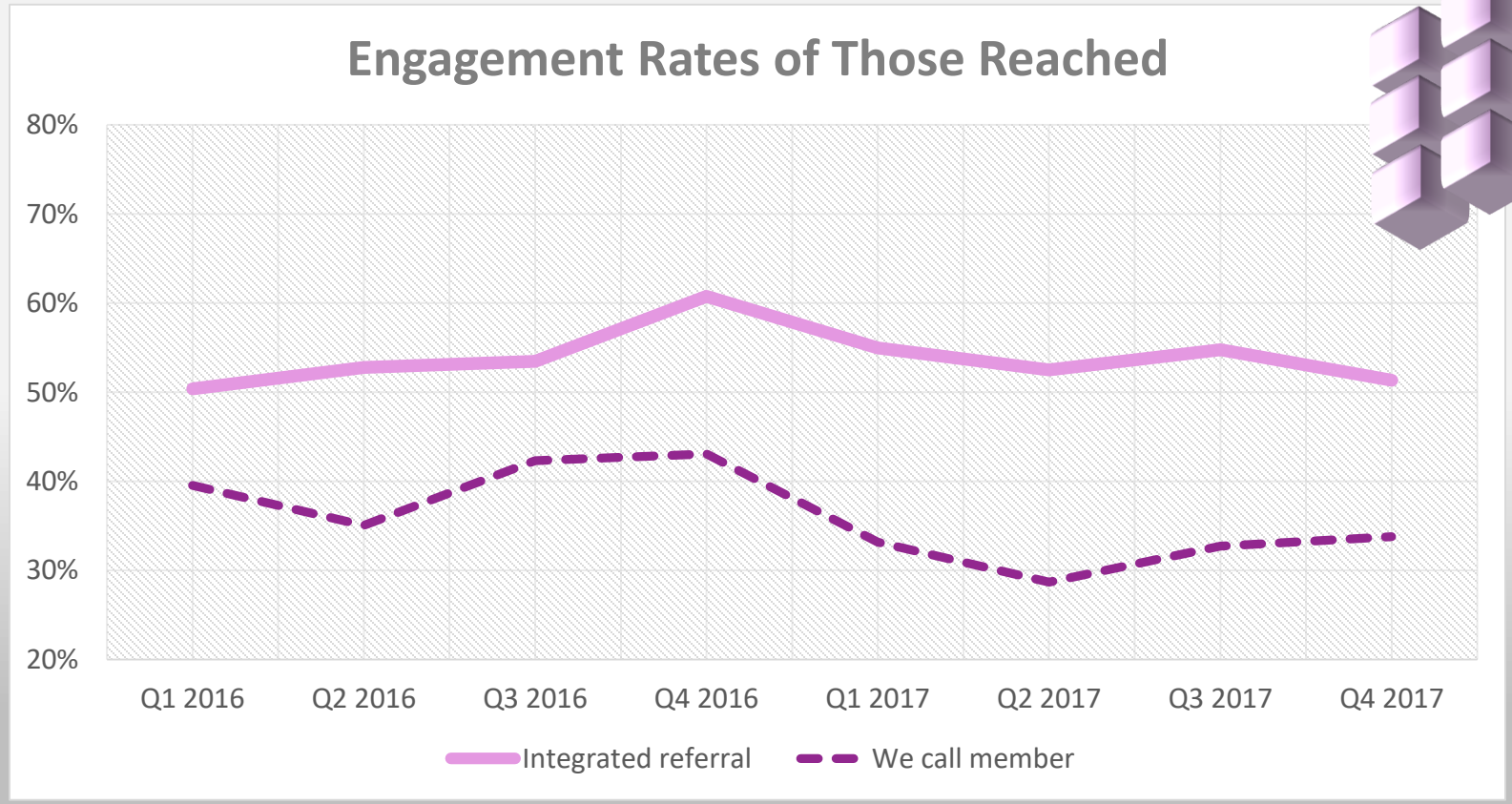

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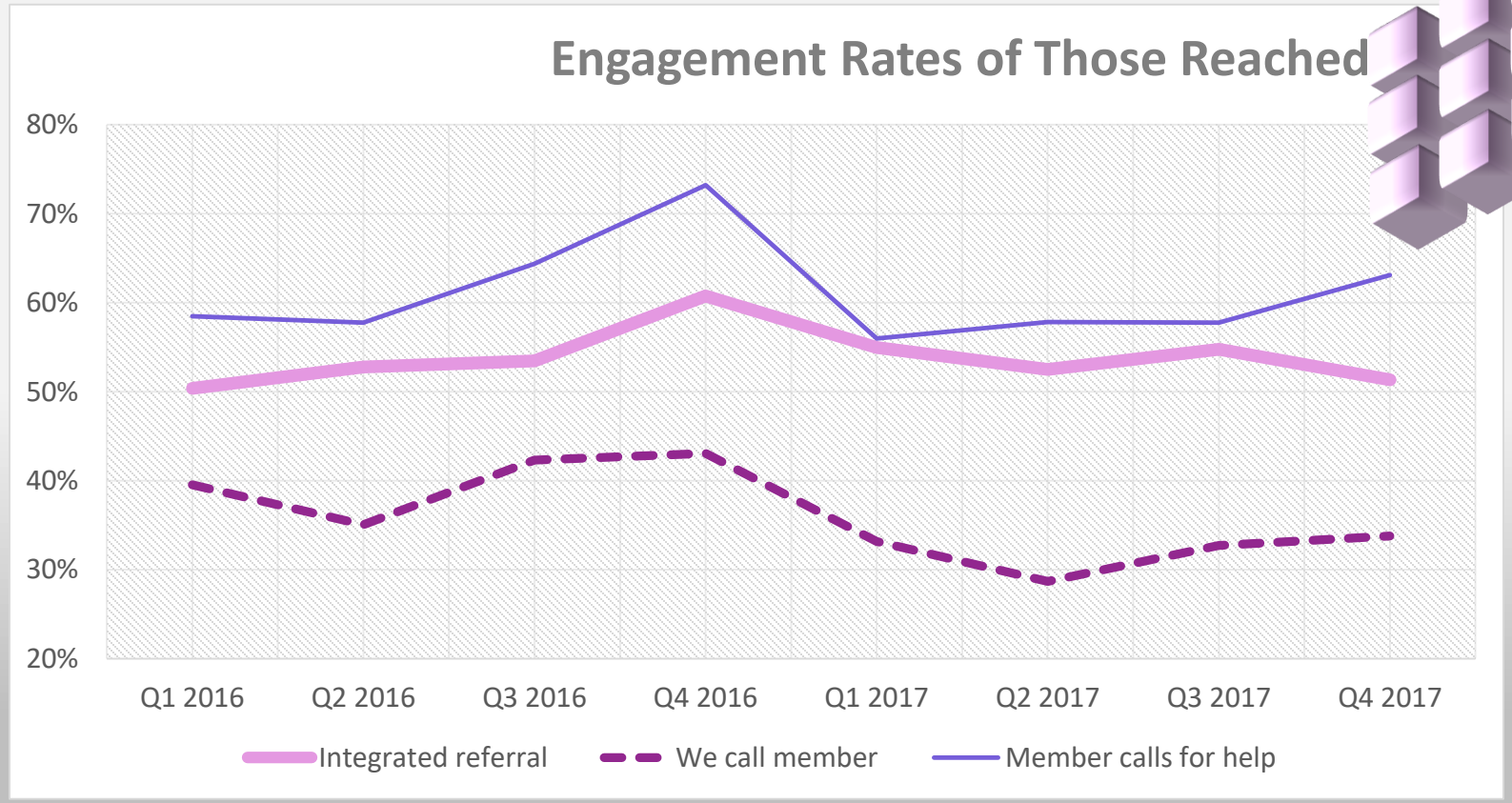
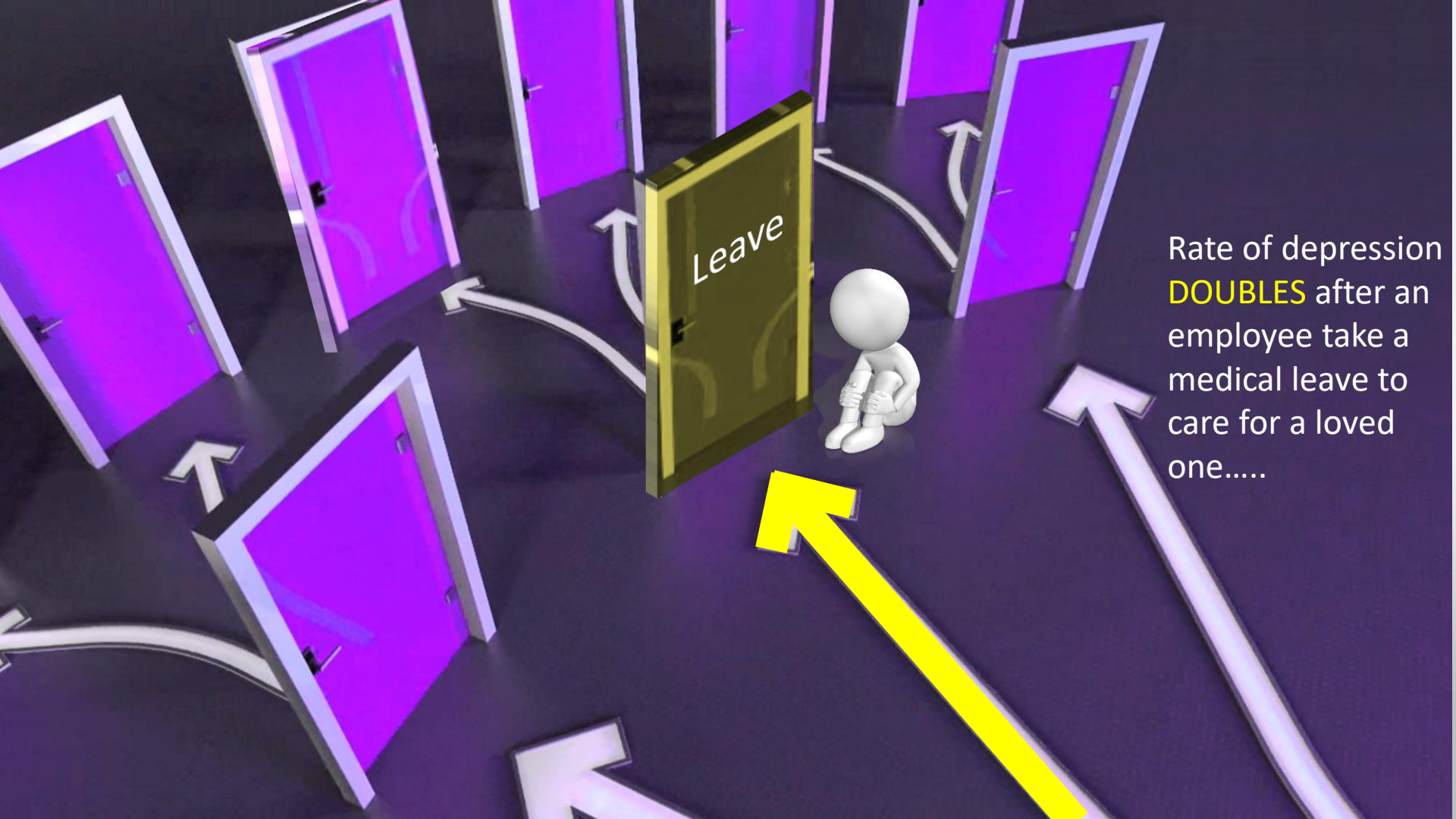
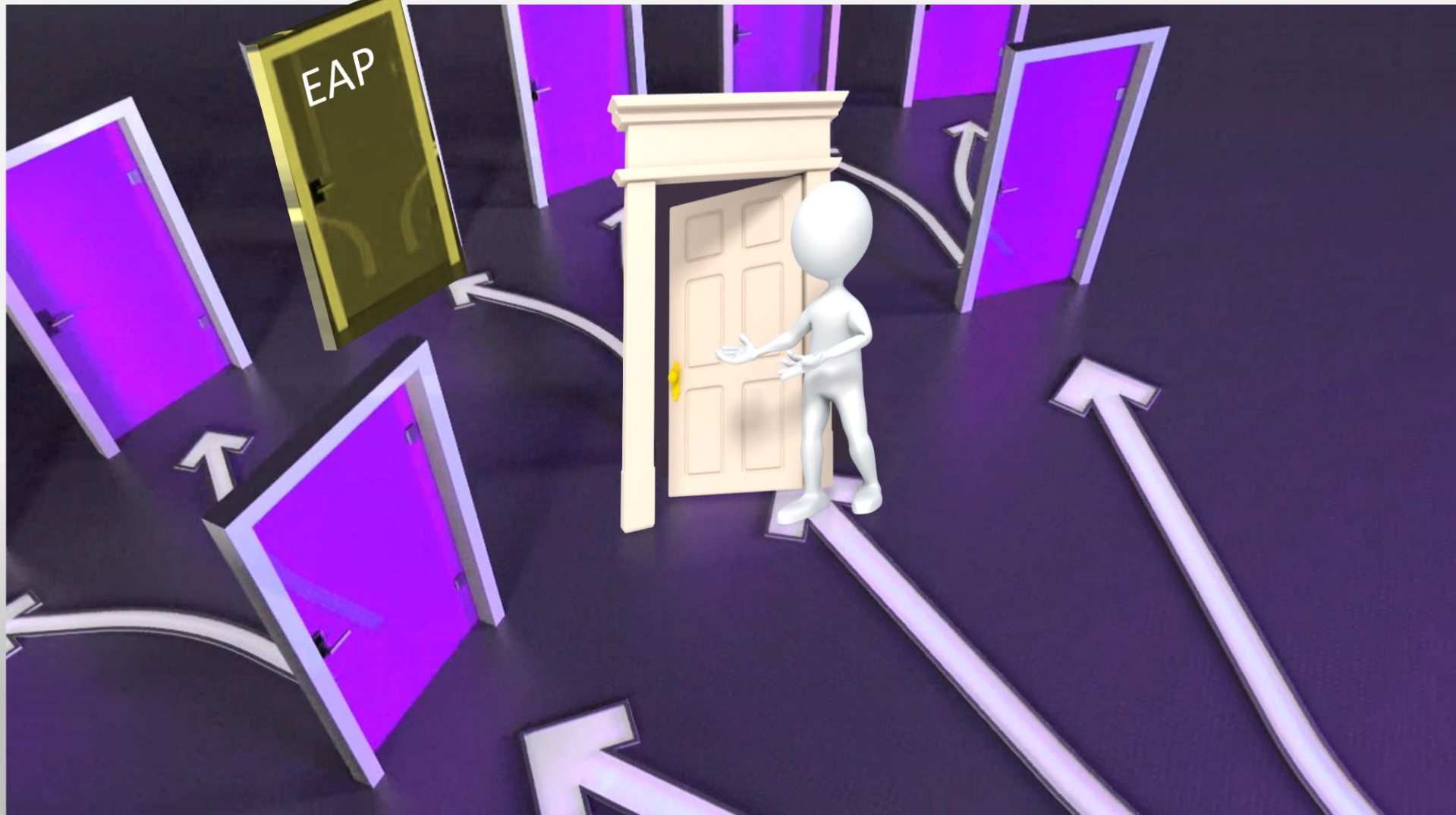
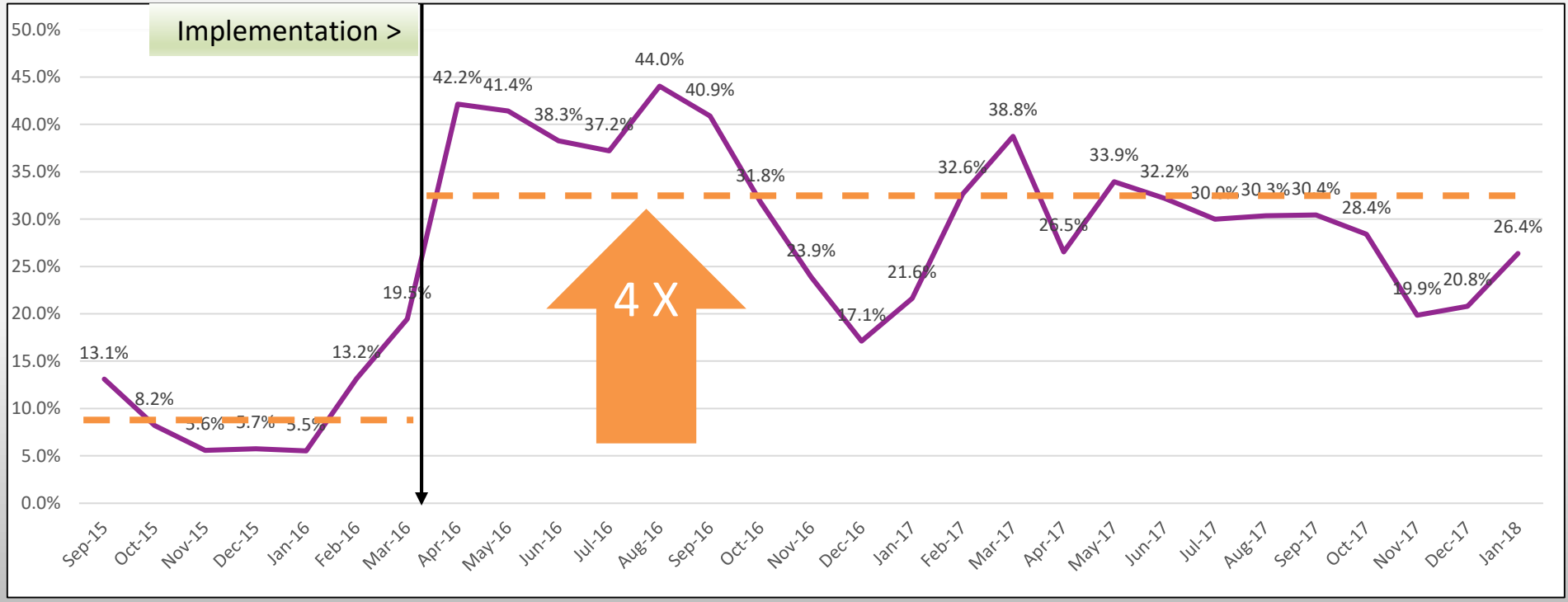




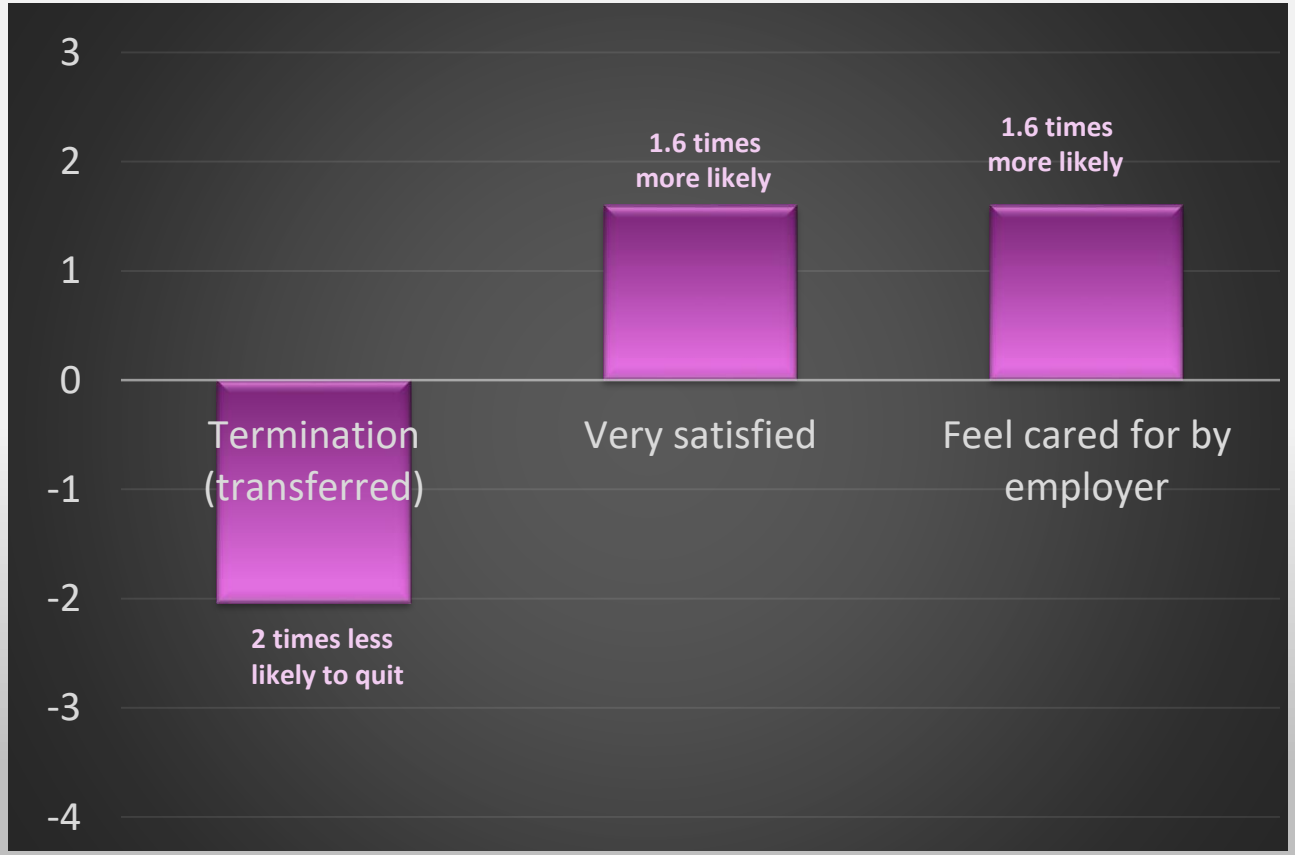
Rate of depression DOUBLES after an employee take a medical leave to care for a loved one…..


EAP

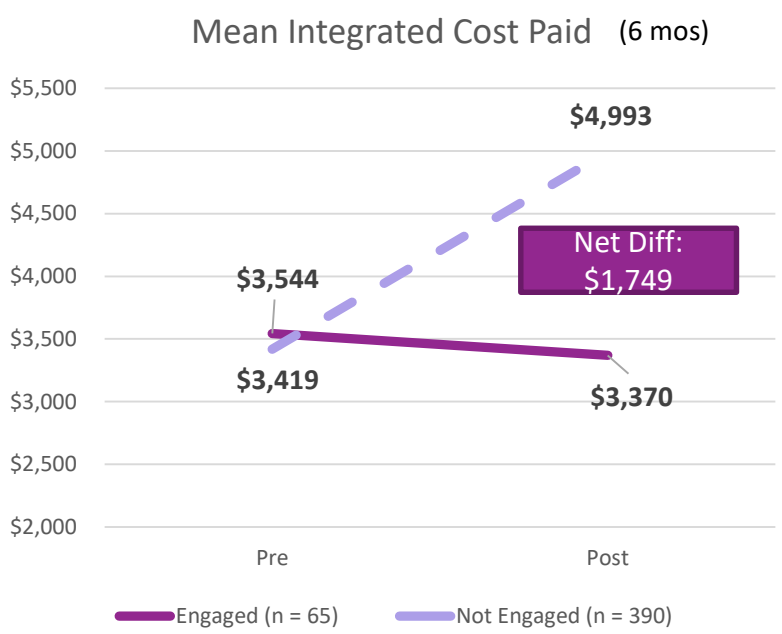
After integrated referral… engagement



THOSE TRANSFERRED TO EAP DO BETTER



THOSE ENGAGED IN EAP COST LESS



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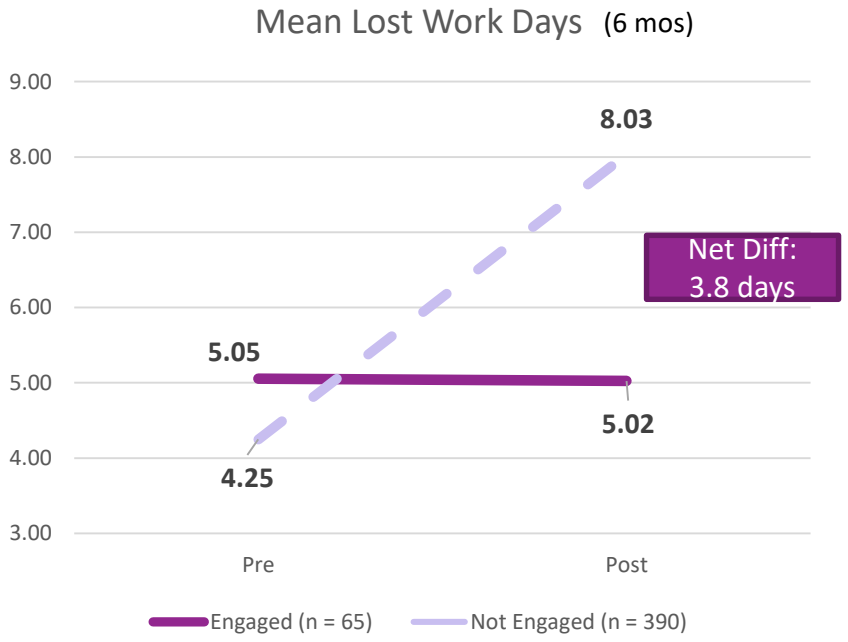

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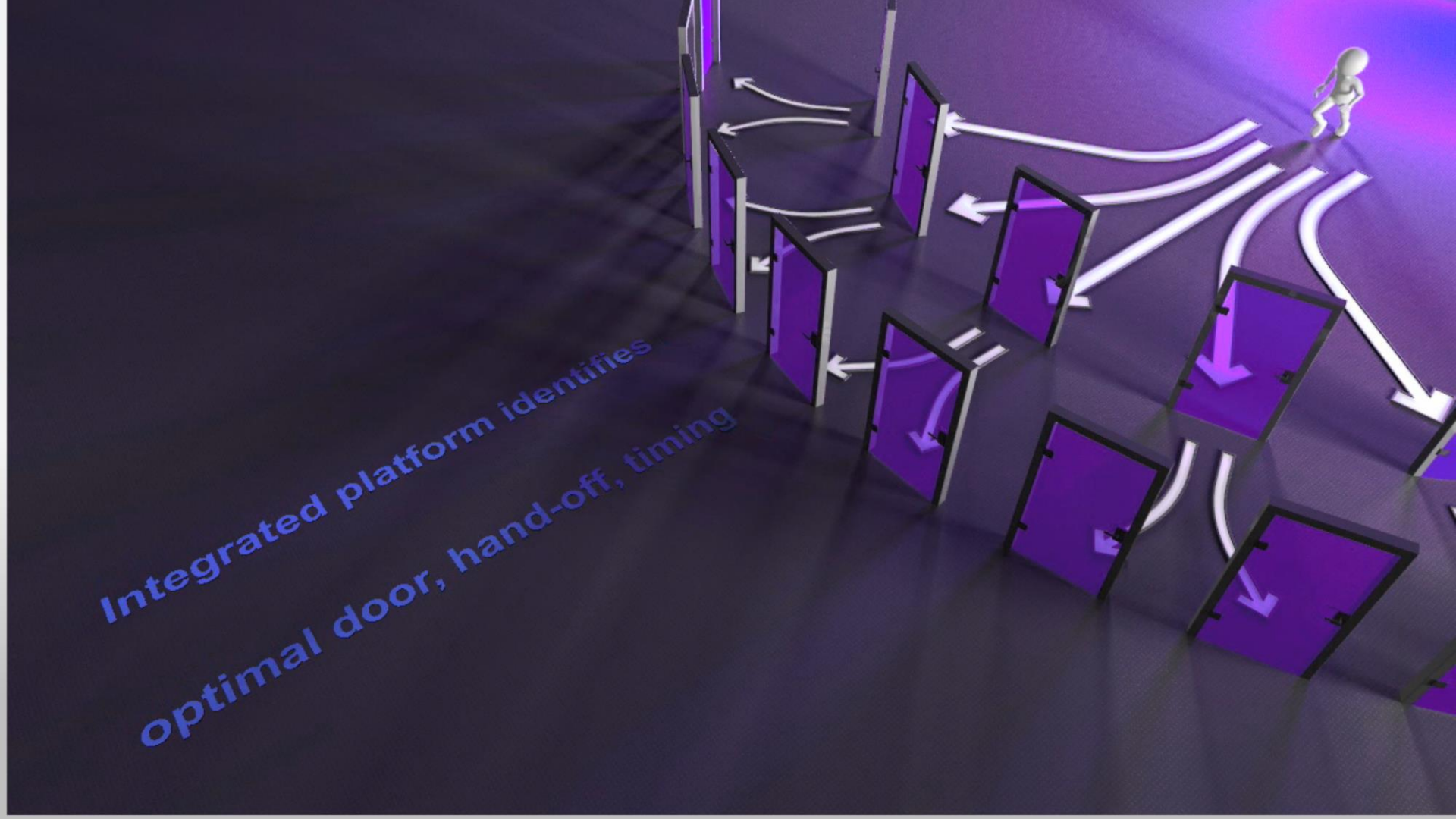
Matched comparison: demographics and pre-cost


Integrated platform identifies
optimal door, hand-off, timing

SUMMARY

Integration at the program level

1. **It can be done.**
2. **Improves engagement and outcomes.**
3. **Leverages investments you are already making.**

PART 3: INTEGRATED STRATEGY

Leveraging strategy and policy to
maximize the value of broad integration.

ABOUT UPMC

Highly integrated system with an academic medical center hub that is closely affiliated with the University of Pittsburgh

UPMC Health Services Division has:

- More than 20 academic, community, and regional hospitals with more than 5,000 licensed beds
- More than 500 clinical locations in western Pennsylvania
- More than 70 inpatient, outpatient & long-term care facilities for rehabilitation services
- More than 3.9 million outpatients visits

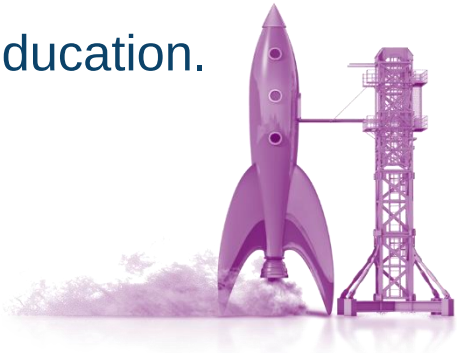
UPMC Insurance Services Division has:

- More than 2.9 million members in FY16
- $7 billion in top line revenue
- 33% market share across all covered lives in western Pennsylvania
- The largest behavioral health insurance provider in Pennsylvania

OUR MISSION

Mission

UPMC's mission is to **serve our community** by providing outstanding **patient care** and to shape tomorrow's health system through clinical and technological innovation, research, and education.



HEALTHY WORKFORCE DEFINITION*

HEALTHY	Demonstrating **optimal health status** as defined by positive health behaviors; minimal modifiable risk factors; and minimal illnesses, diseases, and injuries
PRODUCTIVE	Functioning to produce the **maximum contribution** to achievement of personal goals and the organizational mission
READY	Possessing an **ability to respond to changing demands** given the increasing pace and unpredictable nature of work
RESILIENT	Adjusting to setbacks, increased demands, or unusual challenges by **bouncing back to optimal well-being and performance** without incurring severe functional decrement

**IOM: Integrating Employee Health: A Report for NASA 2007*

Our Challenge: Growing Healthier and More Productive Employees and Businesses

Health Measure	Pittsburgh Ranking vs. 14 Similar U.S. Economic Regions	
Diabetes	19%	13th
Fatal Heart Attacks	25.3%	12th
Obesity	36.6%	10th

Hospital Employees: Sicker and Higher Cost

Healthcare employees:

- 10% higher healthcare costs
- Hospital employees and families have 13% higher healthcare costs
- Hospital employees & families have 8.6% more illness
- Hospital workers & families had fewer physician office visits, yet were 22% more likely to visit the ER
- The average annual cost of healthcare for hospital employees was $4,662, $538 higher than the general employee population.

(Source: CHICAGO | Monday Sept 12, 2011 12:25am EDT (Reuters)

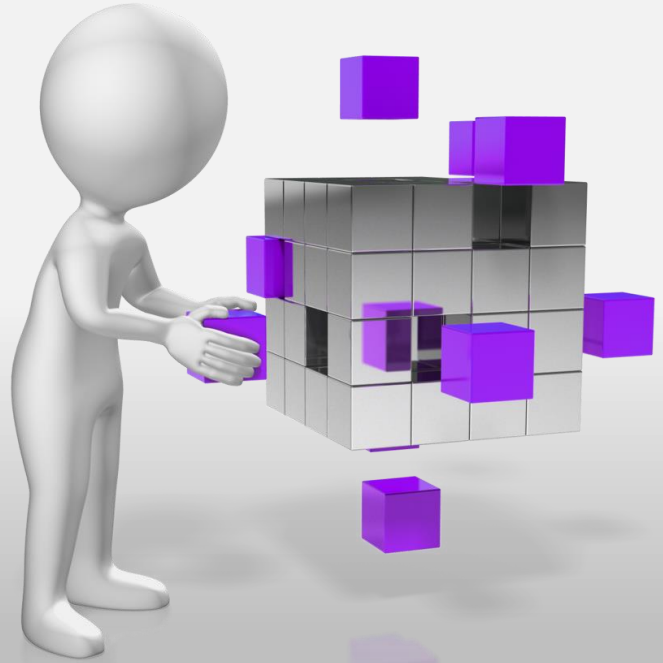
INTEGRATED PRIORITIES

Human Capital

- Retention
- Absence
- Safety

Health

- Mental health
- Musculoskeletal



STRATEGIC COLLABORATION

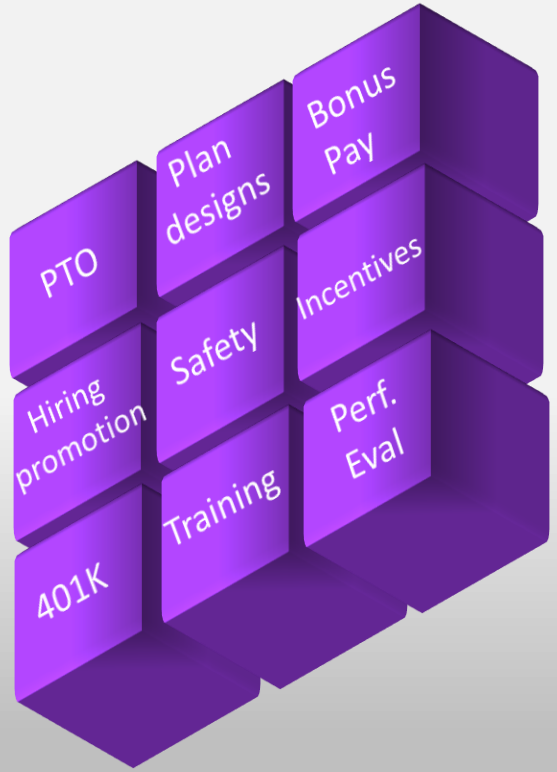
- Big Data also means **Big Cooperation**
- Data owners come from all aspects of the business.
- And buy-in at the top is key.

SIMPLE CONNECTIONS

We know policy and strategy influence each other.

Tighter STD and PTO policy increases use of workers compensation and FMLA.

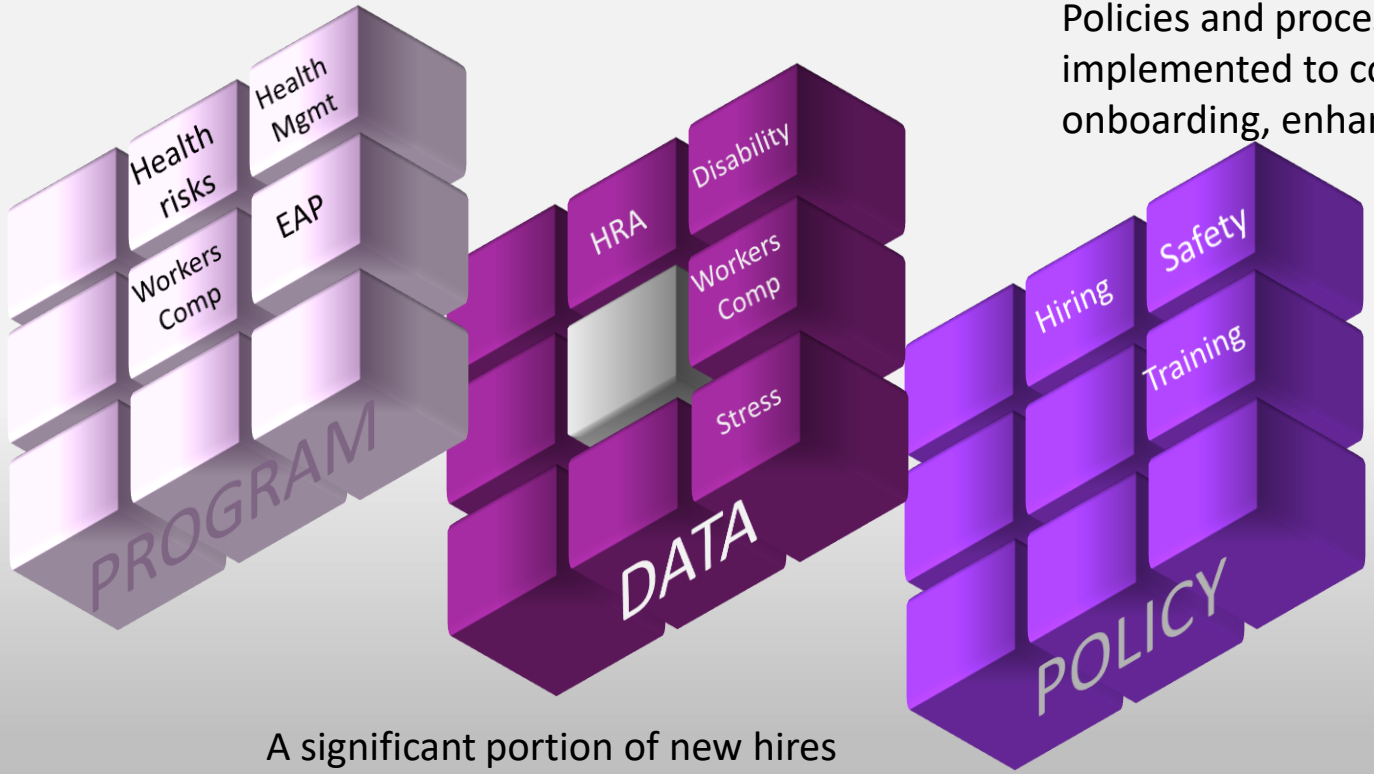
How we pay people affects how they use benefits and how they perform.



NEW HIRES

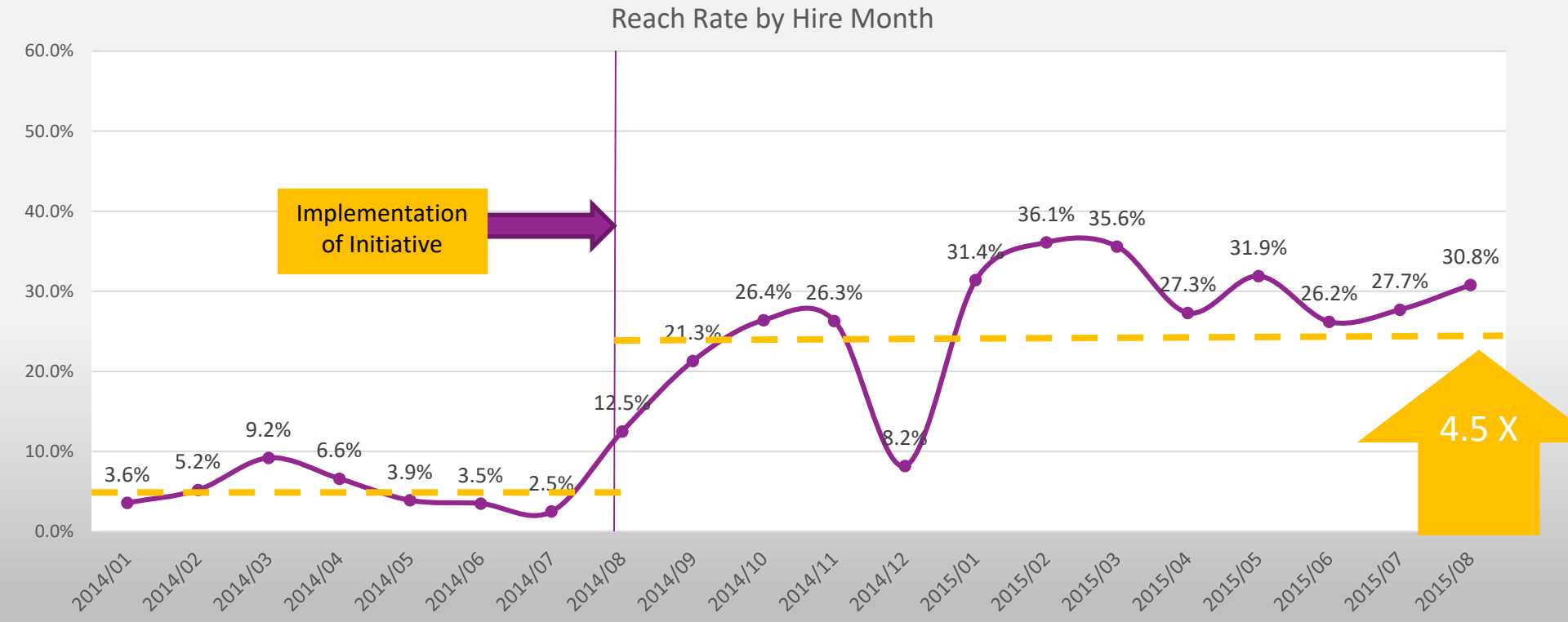
Engagement in EAP and health coaching was low.

Policies and processes were implemented to conduct HRA during onboarding, enhance safety training.



A significant portion of new hires developed new health risks and stress within 18 months and had almost double the rate of disability and workers compensation.

NEW HIRES

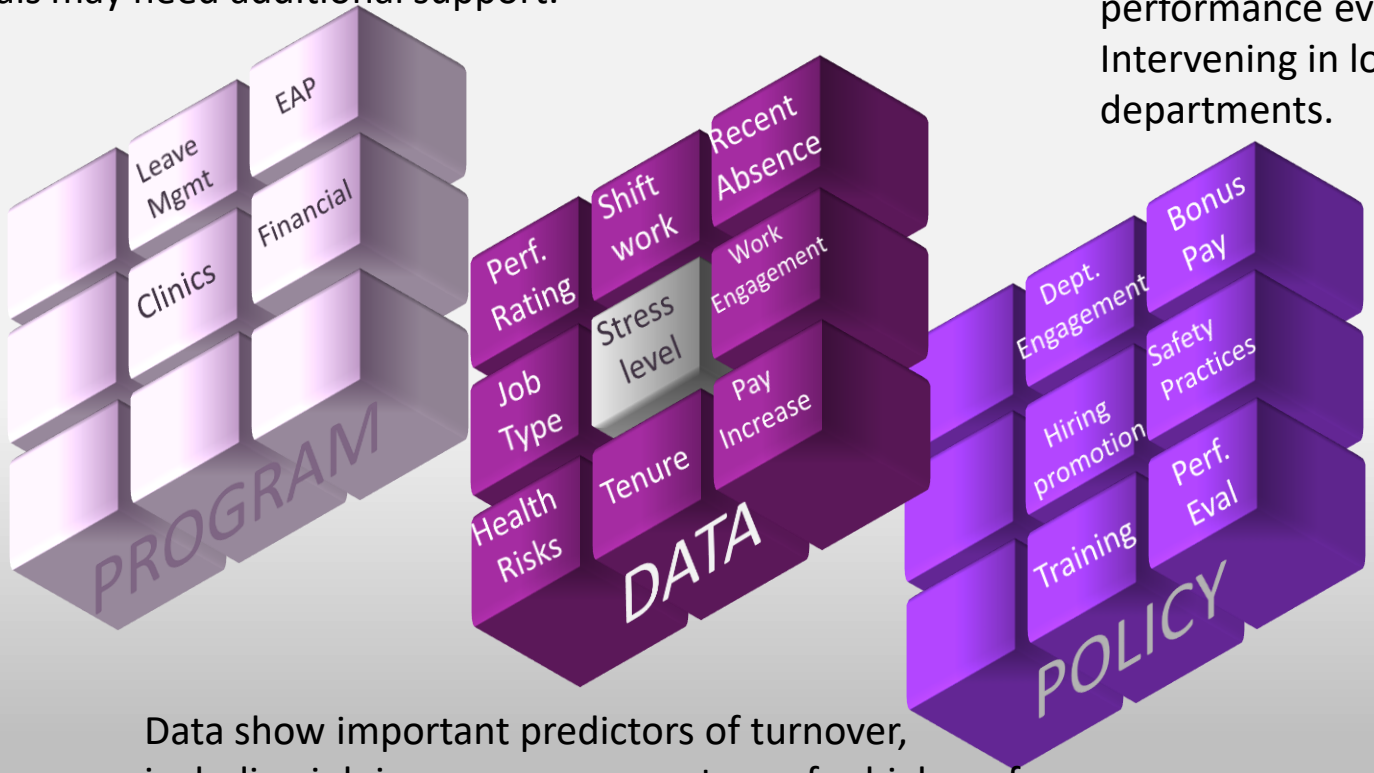


Dramatic increase in engagement with health coach for review.

TURNOVER

Program integration indicates when individuals may need additional support.

HR fine-tuning bonus and performance evaluation methods. Intervening in low-rated departments.



Data show important predictors of turnover, including job issues, engagement, pay for high performers, recent leave and disability.

Building an Effective, Integrated Human Capital Strategy

Philosophical and strategic platform.

- Informed by data
- Supported by services
- 15 years of human capital research

UPMC results:

Higher engagement, leading to
Lower turnover
Lower cost
Fewer absences
Higher satisfaction
Maximized value of existing services