



## How 3 Minutes Can Be Worth \$1 Billion

*Richard C. Dunne  
President & CEO  
Bdellium, Inc.  
April 26, 2014*

# The \$1 Billion Question

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- The Year is 1958
- Ford and GM start offering new models
- One car goes on to sell 13 million units – more than any other full sized car in the history of the automobile
- The other car sold fewer than 120,000 units and became infamous as one of the worst-selling cars of all time

## Can You Predict The Winner?



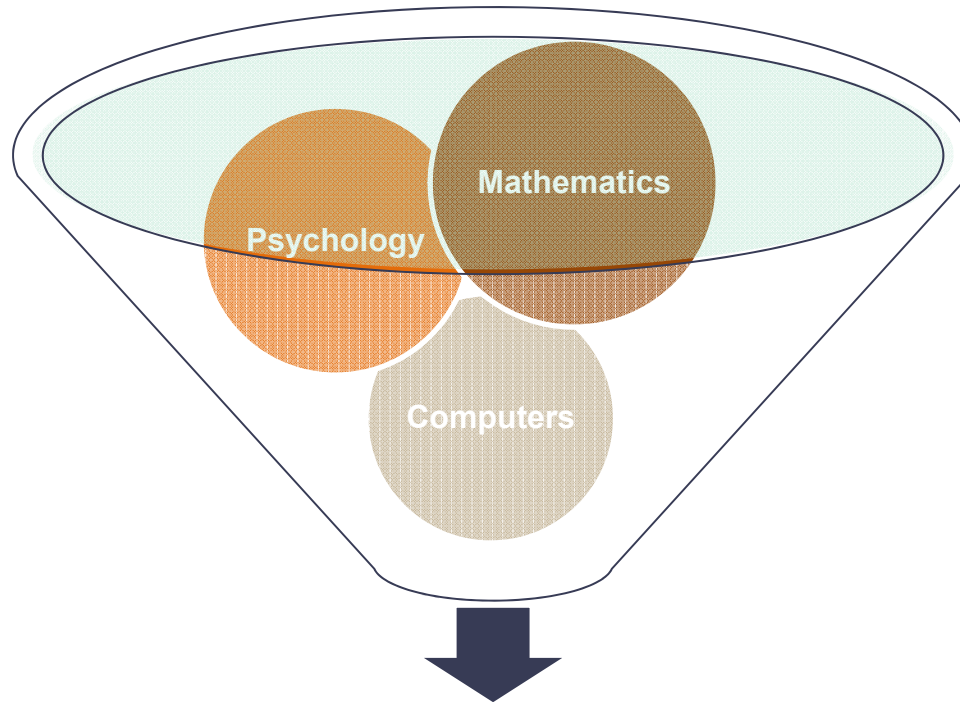
Ford Edsel



Chevrolet Impala

# Better Decision-Making Methods Have Evolved Over Decades

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**Method of Paired Comparisons (1927)**  
**Rasch Models (1960)**  
**Conjoint Analysis (1964)**  
**Multi-Criteria Decision Analysis (1970s)**  
**Maximum Difference Scaling (1989)**

# Challenge & Opportunity

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## The Retirement Industry is Changing

Old Paradigm	New Paradigm
Counting Stars	Evaluating Suitability
Data Dump	Decision Process
Blind Trust	Transparent Verification
Lowest Cost	Highest Value

*How can a fiduciary select the best solution if they cannot adequately differentiate between the quality of competing candidates?*

### Comparing Apples To Oranges

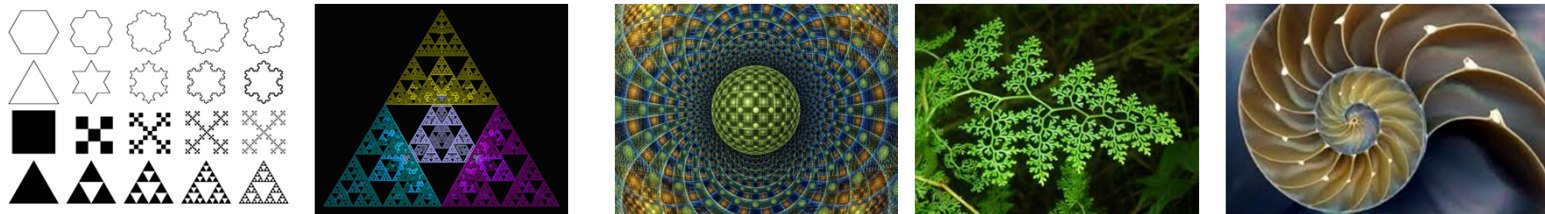
- ⇒ Specify Assessment Criteria
- ⇒ Quantify Relative Importance
- ⇒ Standardize Measurements
- ⇒ Incorporate Tradeoffs

### A STAR Quality™ Solution is:

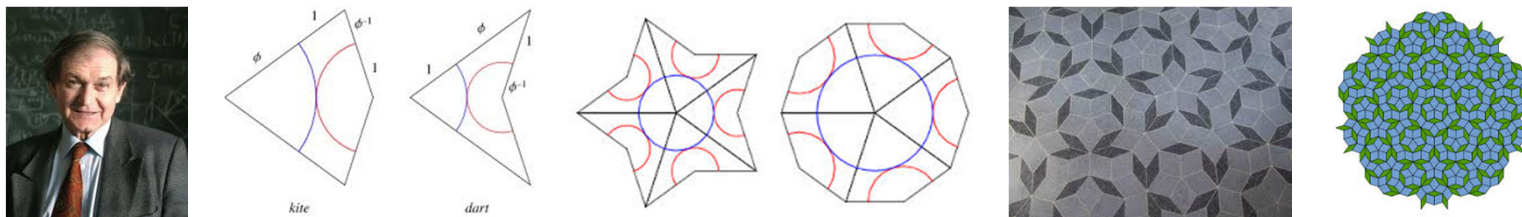
- ⇒ Simple, so it can be understood
- ⇒ Transparent, so it can be verified
- ⇒ Actionable, so it delivers value
- ⇒ Responsive, so it meets client's needs

# Simple Does Not Mean Simplistic

Fractals repeats a simple pattern to form a complex design



Simple Penrose Tiles create infinitely non-periodic, self-similar designs



## The Penrose Principle

We can accomplish more  
with simple tools that we fully master  
than with complex tools that we never adequately understand

# Understanding What is Important



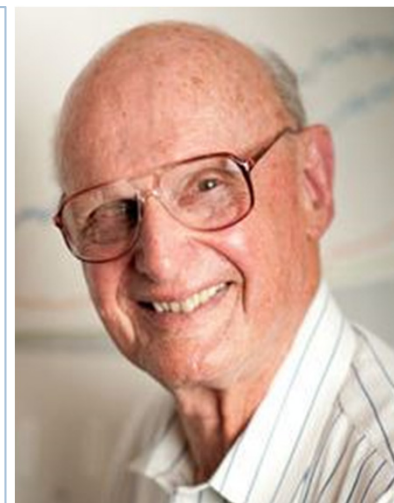
## See Inside The Plan Sponsor's Mind

- ⇒ Differentiate candidates across multiple criteria
- ⇒ Demonstrate best fit to plan demographics and sponsor priorities
- ⇒ Document the path from criteria to importance to suitability assessment to selection

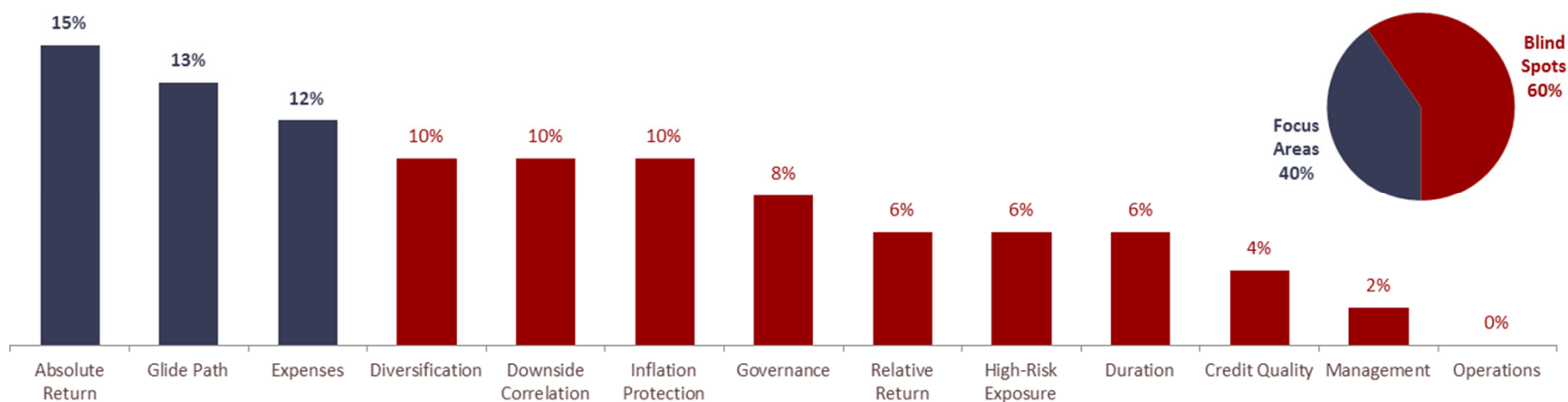
“I should have computed the historical co-variances of the asset classes and drawn an efficient frontier. Instead ... [m]y intention was to minimize my future regret. So I split my contributions fifty-fifty between bonds and equities”

***Professor Harry M. Markowitz \****

\* when asked by *Money* magazine in January 1998 how he put his TIAA-CREF retirement money to work



# Overcoming The Tyranny of Tunnel Vision



*“Among the following 4 criteria only, which do you consider the **most important** and the **least important** when selecting a Target Date Fund?”*

Criteria	Most Important	Least Important
Absolute Return	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Glide Path	<input type="checkbox"/>	<input type="checkbox"/>
Relative Return	<input type="checkbox"/>	<input type="checkbox"/>
Diversification	<input type="checkbox"/>	<input type="checkbox"/>

Criteria	Most Important	Least Important
Diversification	<input type="checkbox"/>	<input type="checkbox"/>
High-Risk Exposure	<input type="checkbox"/>	<input type="checkbox"/>
Expenses	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Management	<input type="checkbox"/>	<input type="checkbox"/>

Criteria	Most Important	Least Important
High-Risk Exposure	<input type="checkbox"/>	<input type="checkbox"/>
Absolute Return	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Downside Correlation	<input type="checkbox"/>	<input type="checkbox"/>
Credit Quality	<input type="checkbox"/>	<input checked="" type="checkbox"/>



# How To Calculate Importance Weights For Criteria and Target Years

## ANSWERS TO SUITABILITY QUESTIONNAIRE AND CRITERIA IMPORTANCE WEIGHTS

Criteria	Most <sup>1</sup>	Least <sup>2</sup>	Net <sup>3</sup>	Rating <sup>4</sup>	Weights <sup>5</sup>	Notes
Absolute Return	4	0	4	100	15%	<ol style="list-style-type: none"> <li>The column headed "Most" shows the number of times each criterion was selected as "Most Important" among 4 subsets of criteria.</li> <li>The column headed "Least" shows the number of times each criterion was selected as "Least Important" among 4 subsets of criteria.</li> <li>The column headed "Net" shows the difference between the values in the "Most" and "Least" columns (Most - Least).</li> <li>This column uses a patented method to convert each value in the "Net" column to a standardized rating between zero (corresponding to the lowest possible Net Value of -4) and 100 (corresponding to the highest possible Net Value of +4).</li> <li>The standardized ratings from the previous column are rescaled so that they sum to 100% and these rescaled values are the Criteria Importance Weights.</li> </ol>
Glide Path	3	0	3	88	13%	
Expenses	2	0	2	75	12%	
Diversification	1	0	1	63	10%	
Downside Correlation	1	0	1	63	10%	
Inflation Protection	1	0	1	63	10%	
Governance	1	1	0	50	8%	
Relative Return	0	1	-1	38	6%	
High-Risk Exposure	0	1	-1	38	6%	
Duration	0	1	-1	38	6%	
Credit Quality	0	2	-2	25	4%	
Management	0	3	-3	13	2%	
Operations	0	4	-4	0	0%	

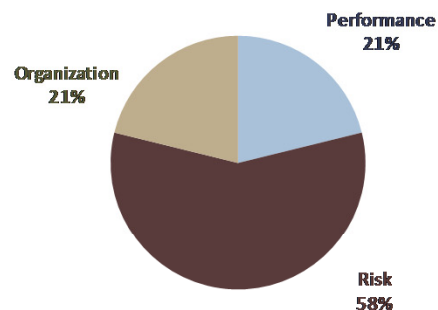
## THIS PLAN'S PARTICIPANT PROFILE AND TARGET YEAR IMPORTANCE WEIGHTS

Target Year	Number of Participants <sup>6</sup>	Aggregate Balances <sup>7</sup>	Weights <sup>8</sup>	Notes
2005	6	\$279,247	0%	<ol style="list-style-type: none"> <li>Assuming that all eligible participants in this Plan were to be auto-enrolled and defaulted into a Target Date portfolio, this column shows the aggregate number of participants who would be defaulted into each of the indicated target years.</li> <li>Each value in this column represents the aggregate current retirement account balances in this Plan of all participants who would be defaulted into the indicated target year.</li> <li>Each value in the previous column is divided by the sum of all aggregate account balances and expressed as a percentage, which is the corresponding Target Year Importance Weight.</li> </ol>
2010	21	\$1,730,304	3%	
2015	37	\$5,593,197	9%	
2020	46	\$6,490,842	10%	
2025	61	\$6,981,747	11%	
2030	109	\$13,777,595	22%	
2035	158	\$12,893,698	21%	
2040	129	\$8,078,398	13%	
2045	144	\$3,674,898	6%	
2050	179	\$2,000,027	3%	
2055	98	\$329,508	1%	
2060	12	\$13,073	0%	

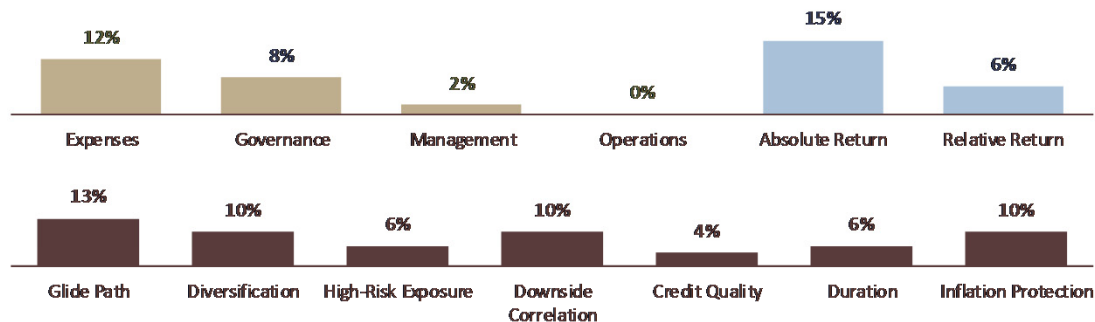


# Incorporate Many Attributes Without Data Overload

## 3 CATEGORIES



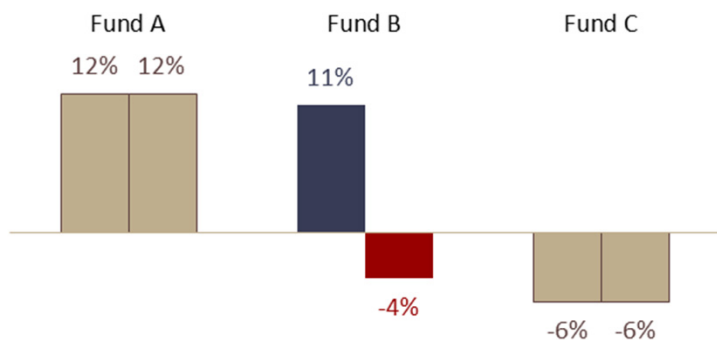
## 13 CRITERIA



## 42 ATTRIBUTES

Annualized Total Return	3.1%	Equity Diversification by 11 Economic Sectors	2.4%	Asset-Weighted Average Credit Rating	3.8%
Annualized Volatility	3.1%	Equity Diversification by 10 Geographic Regions	2.4%	Average Effective Duration (years)	5.8%
Performance Strength Indicator	3.1%	Exposure to Non-US Bonds	0.8%	Allocation to Inflation-Protected Securities	0.9%
Return Consistency Indicator	3.1%	Exposure to Non-US Equities	0.8%	Upside Correlation to Inflation	4.4%
Multi-Period Cumulative Return	3.1%	Exposure to Emerging Markets	0.8%	Sharpe Ratio (Inflation)	4.4%
Sharpe Ratio (DJ Target Date Index)	1.2%	Exposure to Micro-Cap Equities	0.8%	Net Expense Ratio	3.8%
Sharpe Ratio (TDA On Target Index)	1.2%	Exposure to High Yield Bonds	0.8%	Expense Drag per \$1 Today	3.8%
Sharpe Ratio (S&P Target Date Index)	1.2%	Exposure to Securitized Assets	0.8%	Turnover Ratio	3.8%
Sharpe Ratio (Target Date Group Average)	1.2%	Exposure to Derivatives	0.8%	Number of Independent Governors	3.8%
Sharpe Ratio (MAR = 6%)	1.2%	Downside Correlation (US Stocks)	1.9%	Percentage of Independent Governors	3.8%
Glide Path Equity Exposure	6.7%	Downside Correlation (Non-US Stocks)	1.9%	Average Manager Tenure (years)	1.0%
Glide Path Stability	6.7%	Downside Correlation (US Bonds)	1.9%	Longest Manager Tenure (years)	1.0%
Portfolio Diversification by Equity/Fixed Income	2.4%	Downside Correlation (Non-US Bonds)	1.9%	Years Since Inception	0.0%
Equity Diversification by 9 Investment Styles	2.4%	Downside Correlation (US Real Estate)	1.9%	Total Assets in Fund	0.0%

# Standardized Rating Delivers Maximum Information



## Rating Formula

$$\frac{100 * (\text{Raw Value Being Rated} - \text{Worst Raw Value})}{(\text{Best Raw Value} - \text{Worst Raw Value})}$$

Case 1				
	Raw Value	Rank	Percentile	Z-Score
Fund A	12%	1	100%	0.77
<b>Fund B</b>	<b>11%</b>	<b>2</b>	<b>66%</b>	<b>0.65</b>
Fund C	-6%	3	33%	-1.41

Case 1			
	Raw Value	Rating Calculation	Rating
Fund A	12%	$100 * (12 + 6) / (12 + 6)$	100
<b>Fund B</b>	<b>11%</b>	$100 * (11 + 6) / (12 + 6)$	<b>94</b>
Fund C	-6%	$100 * (-6 + 6) / (12 + 6)$	0

Case 2				
	Raw Value	Rank	Percentile	Z-Score
Fund A	12%	1	100%	0.77
<b>Fund B</b>	<b>-4%</b>	<b>2</b>	<b>66%</b>	<b>-0.58</b>
Fund C	-6%	3	33%	-1.41

Case 2			
	Raw Value	Rating Calculation	Rating
Fund A	12%	$100 * (12 + 6) / (12 + 6)$	100
<b>Fund B</b>	<b>-4%</b>	$100 * (-4 + 6) / (12 + 6)$	<b>11</b>
Fund C	-6%	$100 * (-6 + 6) / (12 + 6)$	0

# Aggregate Ratings – Simple Calculation Delivers Custom Solution

Candidate F		2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Overall
Weight	<b>B</b>	0%	3%	9%	10%	11%	22%	21%	13%	6%	3%	1%	0%	
Diversification by:		82	78	70	60	60	72	8	31	65	15	63	74	<b>48</b>
Equity / Fixed Income	2.4%	67	84	83	76	56	77	10	9	18	16	35	89	47
9 Investment Styles	2.4%	85	70	70	52	48	84	11	19	84	5	80	68	49
11 Economic Sectors	2.4%	88	79	45	39	94	79	9	32	90	22	74	66	52
10 Geographic Regions	2.4%	89	76	82	74	42	48	2	64	67	18	64	72	47
	<b>C</b>													<b>A</b>

Candidate F		2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Overall
Weight		0%	3%	9%	10%	11%	22%	21%	13%	6%	3%	1%	0%	
Diversification by:		82	78	70	60	60	72	8	31	65	15	63	74	<b>48</b>
Equity / Fixed Income	2.4%	67	84	83	76	56	77	10	9	18	16	35	89	47
9 Investment Styles	2.4%	85	70	70	52	48	84	11	19	84	5	80	68	49
11 Economic Sectors	2.4%	88	79	45	39	94	79	9	32	90	22	74	66	52
10 Geographic Regions	2.4%	89	76	82	74	42	48	2	64	67	18	64	72	47
	<b>E</b>						<b>F</b>							

Candidate F		2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Overall
Weight	<b>J</b>	0%	3%	9%	10%	11%	22%	21%	13%	6%	3%	1%	0%	
Diversification by:		82	78	70	60	60	72	8	31	65	15	63	74	<b>48</b>
Equity / Fixed Income	2.4%	67	84	83	76	56	77	10	9	18	16	35	89	47
9 Investment Styles	2.4%	85	70	70	52	48	84	11	19	84	5	80	68	49
11 Economic Sectors	2.4%	88	79	45	39	94	79	9	32	90	22	74	66	52
10 Geographic Regions	2.4%	89	76	82	74	42	48	2	64	67	18	64	72	47
	<b>H</b>													<b>I</b>
														<b>G</b>

# Bringing it all Together – The TDF Suitability Rating™

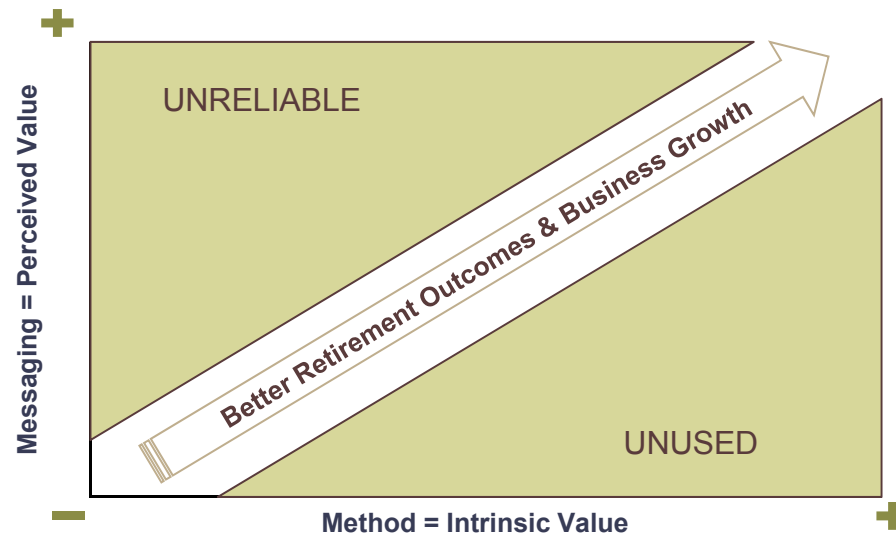
Single TDF Series	Overall	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
	100%	0%	3%	9%	10%	11%	22%	21%	13%	6%	3%	1%	0%
Absolute Return	50	45	45	46	67	59	45	48	47	41	46	52	44
Glide Path	15%	22	29	1	70	71	14	96	10	12	4	40	17
Expenses	13%	60	11	32	76	49	91	8	87	75	66	96	59
Diversification	12%	65	49	21	69	47	15	78	83	71	78	71	49
Downside Correlation	10%	48	82	78	70	60	60	72	8	31	65	15	63
Inflation Protection	10%	43	16	39	10	70	92	62	8	41	4	65	22
Governance	10%	44	30	13	11	71	49	59	20	66	17	73	52
Relative Return	8%	42	43	77	12	68	99	28	12	59	37	53	78
High-Risk Exposure	6%	53	86	85	89	99	23	51	33	65	29	25	28
Duration	6%	49	96	93	40	97	4	66	33	48	63	6	32
Credit Quality	6%	37	78	73	93	83	17	26	15	17	29	48	100
Management	4%	64	92	29	87	65	97	85	42	49	49	9	56
Operations	2%	44	22	4	98	56	34	37	37	18	80	48	88
	0%	42	69	73	64	33	71	47	32	6	40	48	74

Absolute Return	Glide Path	Expenses	Diversification	Downside Correlation	Inflation Protection	Governance	Relative Return	High-Risk Exposure	Duration	Credit Quality	Management	Operations	Overall Result	TDF Suitability Rating™
15%	13%	12%	10%	10%	10%	8%	6%	6%	6%	4%	2%	0%	100%	
80	83	77	57	29	82	15	100	88	69	100	87	13	70	100
68	100	82	46	37	64	100	28	58	39	37	61	81	65	92
49	40	83	54	58	77	73	41	80	48	40	41	58	58	82
24	5	84	100	67	89	88	14	100	19	22	100	68	56	79
54	33	100	41	59	57	33	82	45	29	52	76	100	54	76
42	60	65	48	43	44	42	53	49	37	64	44	42	50	69
100	21	48	45	33	24	0	46	0	100	100	37	29	47	65
65	33	0	0	60	47	0	94	0	36	22	0	58	33	44
25	87	0	0	64	48	0	34	0	22	19	48	0	31	42
0	24	0	0	0	0	0	0	0	0	0	15	91	4	0

# From Analysis to Action

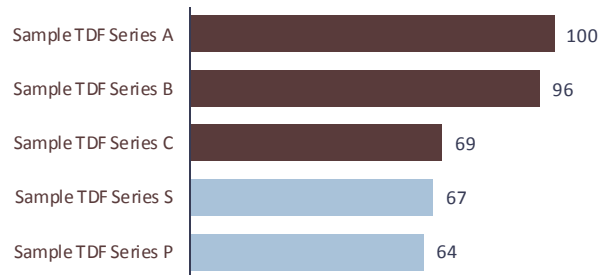
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- The advisors and plan sponsors who have greatest impact on improving retirement outcomes are successful at changing behavior
- **Good Method + Good Messaging = Action = Better Outcomes**
- (This is also the formula for successful business growth)

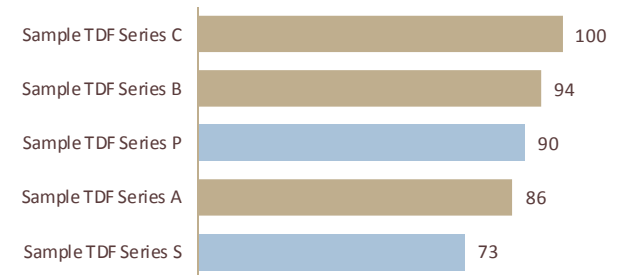


# A Simple Bar Chart Tells The Full Story

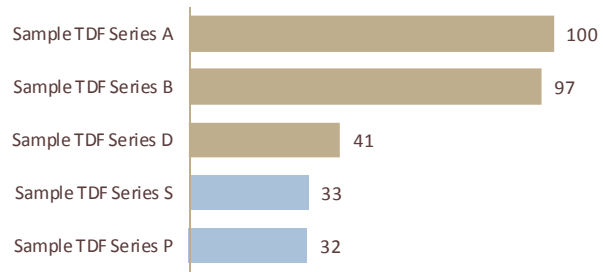
5 Candidate Target Date Series by Overall TDF Suitability Rating™



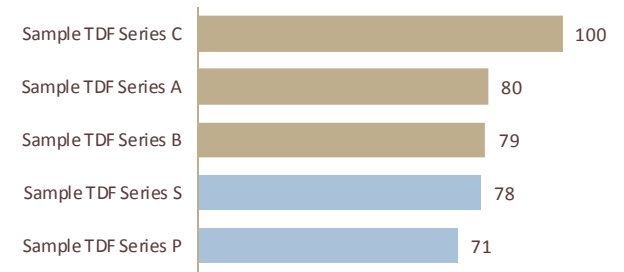
5 Candidate Target Date Series by Performance Suitability Rating™



5 Candidate Target Date Series by Risk Suitability Rating™



5 Candidate Target Date Series by Organization Suitability Rating™



# A Deeper Dive By Target Year

Target Date Series Name	Overall	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Weight:		0%	3%	9%	10%	11%	22%	21%	13%	6%	3%	1%	0%
Sample TDF Series A	Rating: <b>100</b> Rank: <b>1/59</b>	n.f.	n.f.	96	100	90	100	100	100	100	100	100	100
Sample TDF Series B	Rating: <b>96</b> Rank: <b>2/59</b>	n.f.	n.f.	100	98	100	90	94	92	98	87	86	85
Sample TDF Series C	Rating: <b>69</b> Rank: <b>3/59</b>	79	82	70	70	54	69	57	77	56	52	54	n.f.
Sample TDF Series S	Rating: <b>67</b> Rank: <b>4/59</b>	n.f.	87	67	76	59	60	56	70	50	57	45	25
Sample TDF Series P	Rating: <b>64</b> Rank: <b>7/59</b>	n.f.	68	76	58	65	48	58	61	68	53	39	42

**Rating higher than 75**  
**Rating lower than 25**

Rating: 60  
Rank/Total 7/50

n.f. = no fund offered in this vintage



# Message Delivered in Pictures, Numbers and Words

## SUITABILITY RELATIVE TO ALL CANDIDATES

Quadrant	Explanation	No. of Criteria
Top Right	Both TDF series have relatively high suitability among all candidates.	6
Bottom Right	The Primary Series has relatively high suitability and the Secondary Series has relatively low suitability among all candidates.	1
Bottom Left	Both TDF series have relatively low suitability among all of the candidates.	4
Top Left	The Primary Series has relatively low suitability and the Secondary Series has relatively high suitability among all candidates.	2

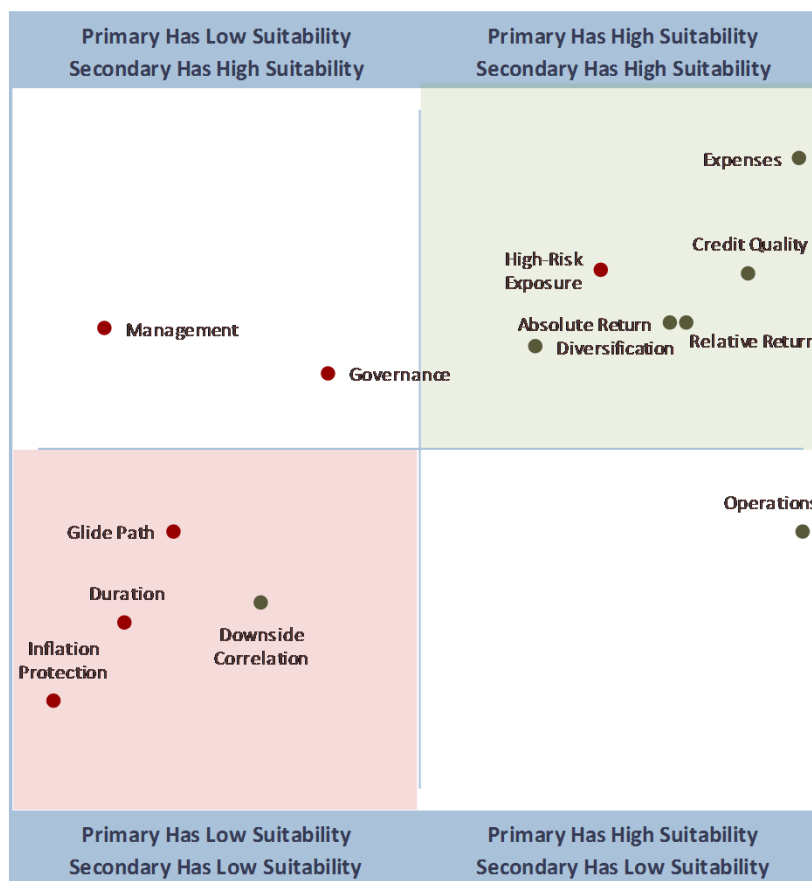
## SUITABILITY RELATIVE TO EACH OTHER

Color Code	Explanation	No. of Criteria
Green	The Primary Series has relatively higher suitability than the Secondary Series.	7
Orange	Both TDF series have exactly the same suitability.	0
Red	The Primary Series has relatively lower suitability than the Secondary Series.	6



The suitability for each criterion has been customized for this plan to reflect the importance weights assigned to each of the 10 target years included in this analysis.

Primary Series	Sample TDF Series P
Secondary Series	Sample TDF Series S



# Reusable Templates Reduce The Learning Curve

## SUITABILITY RELATIVE TO ALL CANDIDATES

Quadrant	Explanation	No. of Years
Top Right	Both series have relatively high suitability among all candidates.	8
Bottom Right	The Primary Series has relatively high suitability and the Secondary Series has relatively low suitability among all candidates.	0
Bottom Left	Both TDF series have relatively low suitability among all of the candidates.	2
Top Left	The Primary Series has relatively low suitability and the Secondary Series has relatively high suitability among all candidates.	1

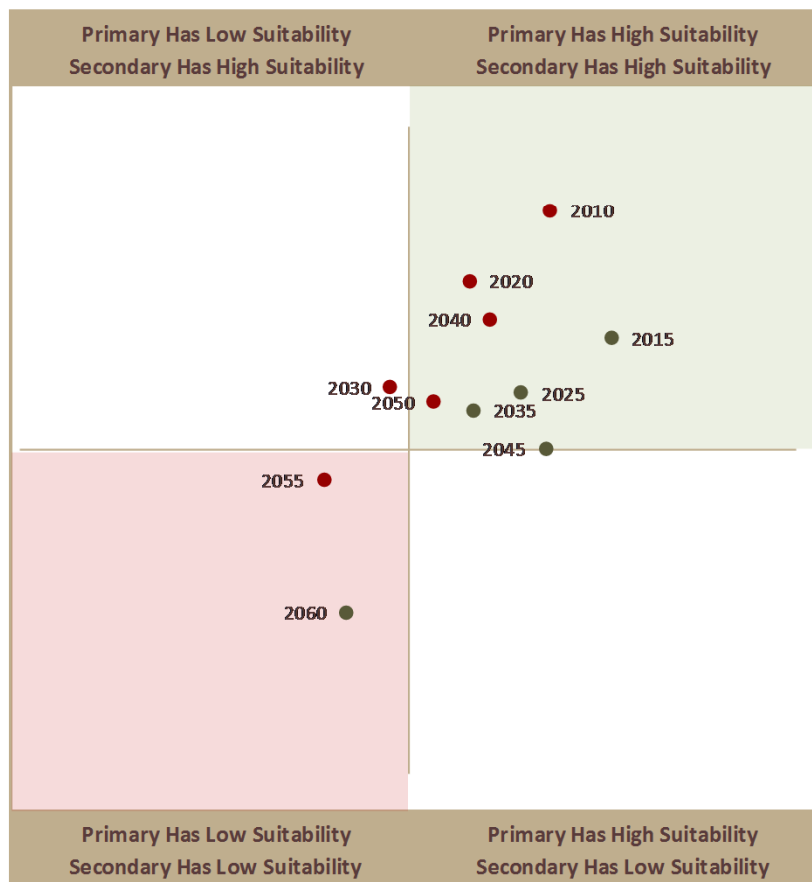
## SUITABILITY RELATIVE TO EACH OTHER

Color Code	Explanation	No. of Years
Green	The Primary Series has relatively higher suitability than the Secondary Series.	5
Orange	Both TDF series have exactly the same suitability.	0
Red	The Primary Series has relatively lower suitability than the Secondary Series.	6



The suitability rating for each target year has been customized for this plan to reflect the importance weights assigned to each of the 13 selection criteria used in this analysis.

Primary Series	Sample TDF Series P
Secondary Series	Sample TDF Series S



# Monitoring Should Be Just As Easy as Initial Selection

## SUITABILITY RELATIVE TO ALL CANDIDATES

Quadrant	Explanation	No. of Criteria
Top Right	Among all candidates, this series had relatively high suitability during both periods under review.	6
Bottom Right	Among all candidates, series had relatively high suitability during the current period and relatively low suitability during the previous period.	1
Bottom Left	Among all candidates, this series had relatively low suitability during both periods under review.	4
Top Left	Among all candidates, this series had relatively low suitability during the current period and relatively high suitability during the previous period.	2

## SUITABILITY RELATIVE TO EACH OTHER

Color Code	Explanation	No. of Criteria
Green	This series had relatively higher suitability in the current period than in the previous period.	7
Orange	This series have exactly the same suitability in both periods.	0
Red	This series had relatively lower suitability in the current period than in the previous period.	6



The suitability rating for each criterion has been customized for this plan to reflect the importance weights assigned to each of the 10 target years included in this analysis.

Current Period	Quarter Ended December 31, 2013
Previous Period	Quarter Ended September 30, 2013



# Risk Anticipation Detection And Response

<b>Current Period</b>	Quarter Ended December 31, 2013
<b>Previous Period</b>	Quarter Ended September 30, 2013

<b>Current Period Overall Rating:</b>	64.2	<b>Net Difference:</b>	-2.6
<b>Previous Period Overall Rating:</b>	66.9	(Current - Previous)	

Criteria	Weight	TDF SUITABILITY RATING™	
		Current	Previous
Absolute Return	15%	83	68
Relative Return	6%	85	68
Expenses	12%	99	93
Credit Quality	4%	93	76
Downside Correlation	10%	29	27
Diversification	10%	65	65
Operations	0%	100	38
Inflation Protection	10%	2	13
High-Risk Exposure	6%	74	76
Duration	6%	11	24
Management	2%	9	68
Governance	8%	38	61
Glide Path	13%	18	38

MARGINAL CONTRIBUTION TO OVERALL RATING		
Current	Previous	Current - Previous
18.1	14.9	3.1
8.5	6.9	1.6
23.9	22.3	1.6
7.0	5.7	1.3
5.2	4.8	0.4
9.9	9.9	0.0
0.0	0.0	0.0
0.0	0.2	0.2
6.5	6.7	0.2
1.4	3.0	1.6
0.3	2.6	2.3
5.4	7.7	2.3
6.2	10.2	4.0

Target Years	Weight	Current	Previous
2045	6%	68	50
2015	9%	76	67
2025	11%	65	59
2035	21%	58	56
2060	0%	42	25
2055	1%	39	45
2050	3%	53	57
2010	3%	68	87
2040	13%	61	70
2020	10%	58	76
2030	22%	48	60
2005	0%	n.f.	n.f.

Current	Previous	Current - Previous
6.0	5.0	1.0
10.2	9.4	0.8
11.4	10.8	0.6
19.2	18.7	0.5
0.0	0.0	0.0
0.4	0.4	0.0
3.0	3.1	0.1
2.7	3.2	0.4
12.7	13.7	1.0
9.9	11.6	1.7
19.6	22.1	2.6
n.f.	n.f.	n.f.

# This Method Addresses DOL Guidance for Choosing TDFs

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## ▪ Establish a Process For Comparing and Selecting TDFs

The process:

- ⊖ Identifies all relevant performance, risk and organizational assessment criteria
- ⊖ Measures the importance of each criterion
- ⊖ Reflects each plan's unique participant profile
- ⊖ Quantifies the suitability of every candidate to the plan



## ▪ Establish a Periodic Review Process for Selected TDFs

The analysis reflects current plan and TDF circumstances, which can be updated at regular intervals or in the event of a change in:

- ⊖ Membership of the plan committee
- ⊖ The plan's objectives and priorities
- ⊖ Characteristics of the participant population
- ⊖ Market conditions



## ▪ Understand The TDF's Investments

The method explains and compares TDF performance, risk, costs and operations based on a comprehensive assessment of:

- ⊖ 13 criteria
- ⊖ 42 attributes
- ⊖ 110 measurements



## ▪ Document The Process

Each element of the decision process can be documented:

- ⊖ Key inputs
- ⊖ Methodology
- ⊖ Candidate Shortlist
- ⊖ Deep Analysis

# A Win For Advisors

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## More Successful Prospecting

- The method is a comprehensive, consistent and compelling differentiator for advisors who want to win new mandates.



## Increased Revenue

- The method enables advisors to increase revenue by providing an ongoing monitoring service to periodically assess the continuing suitability of the TDF choice, in addition to the initial TDF search.



## Reduced Risk

- The method supports an independent, objective decision-making process that is tailored to the specific profile of each plan's participants and the priorities of the plan's fiduciaries.

# A Market Changing Opportunity

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- **Simple**
  - ⊗ Determine importance using a short MaxDiff questionnaire
  - ⊗ Standardize measurements using simple ratio scale
  - ⊗ Use weighted averages to aggregate results
  
- **Transparent**
  - ⊗ Every calculation can be reviewed and checked in a spreadsheet
  - ⊗ Fully documented, globally proven process
  
- **Actionable**
  - ⊗ Results can be presented in simple pictures, words and numbers
  - ⊗ Bar Chart, Quadrant Graph and RADAR Graph
  
- **Responsive**
  - ⊗ Incorporates Plan Committee Priorities and Plan Demographics
  - ⊗ A single solution serves plan sponsors, advisors and TDF providers



# QDIA BLUE BOOK™ Study

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- 1** Go to [www.qdia.com](http://www.qdia.com)
- 2** Click on the link “Find out what’s important to you” (it’s free!)
- 3** Complete questionnaire and receive your personal importance profile

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