2006 TDWI SALARY, ROLES, AND RESPONSIBILITIES REPORT

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THE DATA WAREHOUSING INSTITUTE

2006 TDWI SALARY, ROLES, AND RESPONSIBILITIES REPORT

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A CORRECTION TO TDWI'S 2005 SALARY SURVEY

Last year, TDWI reported that the average salary of DW/BI professionals in the U.S. and Canada had risen 8.7 percent, from $85,619 in 2003 to $93,078 in 2004. Subsequent to the publication of TDWI's 2005 *Business Intelligence Salary, Roles, and Teams Report*, we identified an error in our calculations that generated incorrect results.

Recalculation of results from 900 U.S. and Canadian respondents to our Web survey showed that average salaries had increased 4.6 percent, to $89,559 in 2004. The error also generated inaccurate calculations for average bonus. In fact, the average bonus increased 5.1 percent, from $10,764 in 2003 to $11,309 in 2004, not the 3.7 percent that we reported. Year-to-year comparative data in this report is based on data recalculated from last year's survey.

Purpose, Methods, and Demographics

PURPOSE

The purpose of this report is to gain a better sense of the people and teams who built and maintained business intelligence (BI) and data warehousing (DW) solutions during the 2005 calendar year. This report will use the term "BI" to refer to both business intelligence and data warehousing initiatives, and the term "BI professionals" for the individuals who deliver these initiatives. Specifically, the report looks at individual compensation, roles, responsibilities, skills, and experience among BI professionals. It also provides a profile of the 10 most common BI roles, examining age, gender, education, job satisfaction, salary and bonus, certification, background, and several other characteristics.
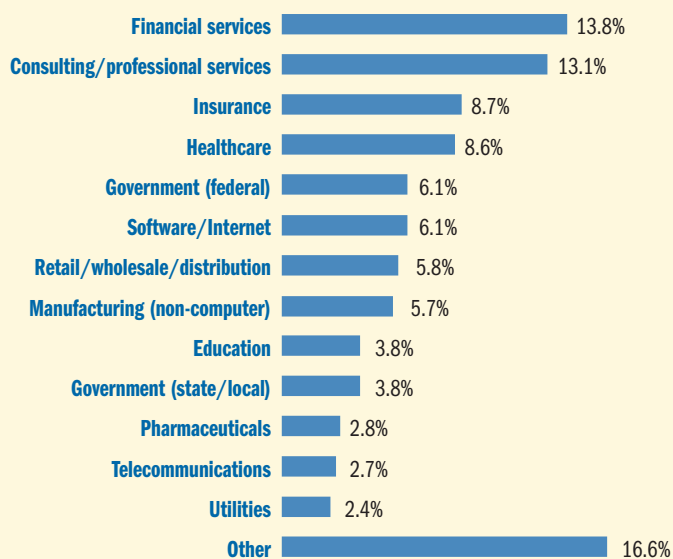
METHODS

This report is based on a Web survey of 1,801 qualified data warehousing and business intelligence professionals in the U.S. and Canada. The survey was conducted in the fall of 2005. To ensure the greatest accuracy of our compensation data, we decided not to survey worldwide BI professionals. Qualified respondents are full-time IT professionals, consultants, systems integrators, or business sponsors or users. Responses from vendor representatives in sales, marketing, and development; professors and students; and part-time employees were discounted. Multi-choice answers and rounding account for totals that do not equal 100 percent.

DEMOGRAPHICS

As in past years, the financial services and consulting industries had the most respondents to the TDWI survey, each with more than 13 percent. Interestingly, the number of federal government respondents more than doubled, from 3 percent in 2004 to 6.1 percent in 2005.

Industry Representation

Industry	Percentage
Financial services	13.8%
Consulting/professional services	13.1%
Insurance	8.7%
Healthcare	8.6%
Government (federal)	6.1%
Software/Internet	6.1%
Retail/wholesale/distribution	5.8%
Manufacturing (non-computer)	5.7%
Education	3.8%
Government (state/local)	3.8%
Pharmaceuticals	2.8%
Telecommunications	2.7%
Utilities	2.4%
Other	16.6%

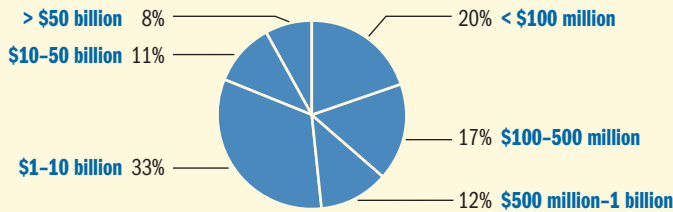**Purpose, Methods, and Demographics**

The percentage of survey respondents from organizations with more than $1 billion in annual revenues surged to 52 percent in 2005, up from 44 percent in 2004, reasserting the historical emphasis on data warehousing by large businesses. However, the other 49 percent of respondents represented businesses with $1 billion or less in revenue, illustrating that BI/DW delivers dividends to organizations of all sizes.

Organization Revenues

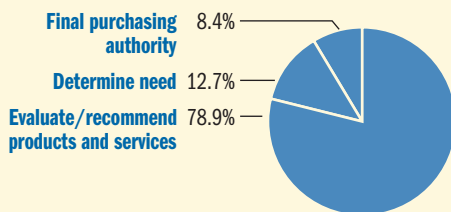|	
> $50 billion 8%	20% < $100 million
$10–50 billion 11%	17% $100–500 million
$1–10 billion 33%	12% $500 million–1 billion

Despite the growing maturity of BI/DW systems, TDWI's survey indicates that a fair percentage are just getting started (21.3 percent) or embarking on an overhaul to better support users or a new strategy (20.6 percent). About 40 percent have either implemented two or more relatively successful iterations, or manage a relatively mature environment. The data makes clear that BI is likely to continue growing at a brisk pace over the remainder of the decade.

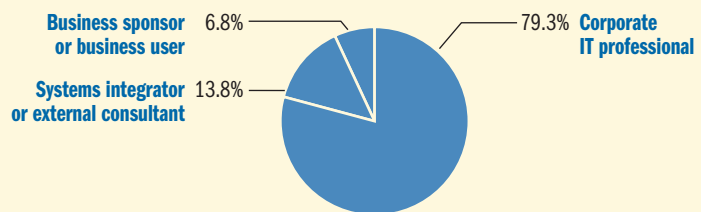### Which Best Describes Your BI Implementation? (%)

Getting serious about BI for the first time	21.3
Doing a major BI overhaul to better meet user needs	20.6
Manage relatively mature BI environment delivering significant business value	19.7
Completed two or more relatively successful major iterations	19.6
Building or have completed first major iteration and looking to expand	18.8

A decisive majority of nearly 80 percent of respondents are in a position to evaluate and recommend products and services; just 8.4 percent have final purchasing authority. And as in past years, the majority of respondents were corporate IT professionals (79 percent).

Purchasing Authority of Individuals

Final purchasing authority 8.4%	
Determine need 12.7%	
Evaluate/recommend products and services 78.9%	

Positions

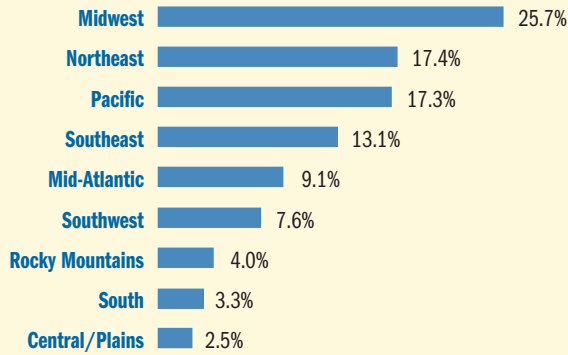|	
Business sponsor or business user 6.8%	79.3% Corporate IT professional
Systems integrator or external consultant 13.8%	

Purpose, Methods, and Demographics

As for geographic distribution in the U.S., the data shows the strongest concentration of BI activity in the Midwest, with the Northeast and Pacific regions in a close run for second place. Canadian respondents totaled 130, or 7.2 percent of the total.

Industry Representation

Region	%
Midwest	25.7%
Northeast	17.4%
Pacific	17.3%
Southeast	13.1%
Mid-Atlantic	9.1%
Southwest	7.6%
Rocky Mountains	4.0%
South	3.3%
Central/Plains	2.5%

The age and gender composition of the BI/DW workforce has remained fairly stable over the last three years, with nominal fluctuations.

Industry Profile by Age

AGE	2005	2004	2003
<25	1%	1%	2%
25–35	25%	29%	30%
36–45	42%	41%	39%
46–55	25%	24%	21%
>55	6%	5%	6%
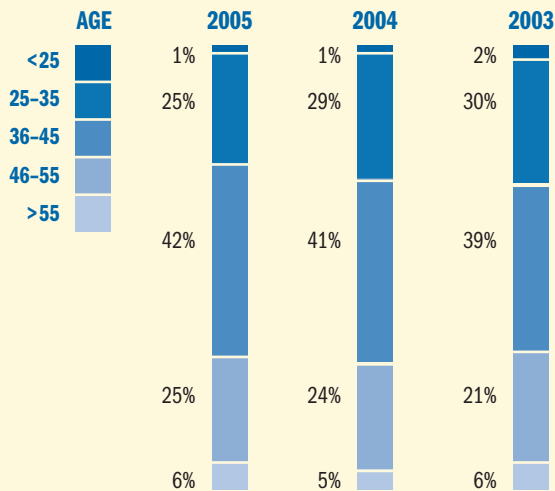
Industry Profile by Gender

2005
Women 28% — 72% Men

2004
Women 26% — 74% Men

2003
Women 32% — 68% Men
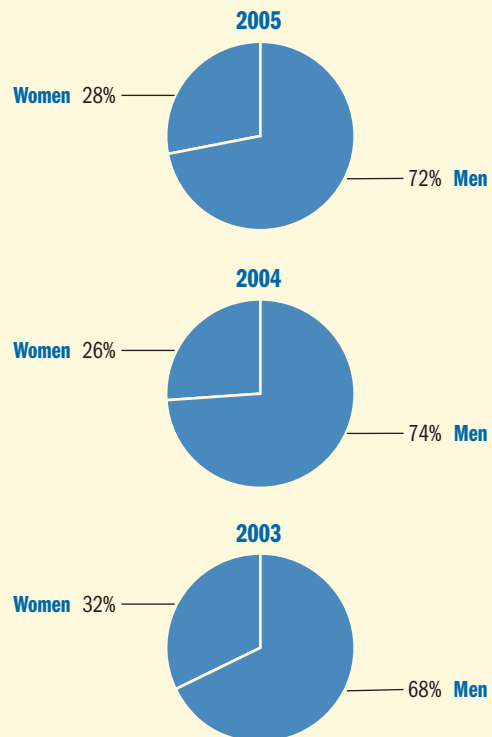
Compensation

SALARY TRENDS

BI salaries saw modest growth in 2005. The average salary crept up 2.4 percent, from $89,559 in 2004 to $91,678 in 2005. This is slightly less than the 3 percent average salary increase for IT workers as reported in *Computerworld's* 2005 survey of 14,253 respondents.

Nevertheless, BI continues to be among the most lucrative professions in IT. The $91,678 average salary in TDWI's survey contrasts favorably to an $87,838 average salary in the *Computerworld* survey. (It should be noted that the two surveys use different criteria. TDWI's survey counted only full-time employees in the U.S. and Canada, where wages are lower; *Computerworld's* respondents came only from the U.S., but included both full- and part-time employees.)

Over the last five years, TDWI's annual salary survey shows a steady increase in average salaries, except for a drop in 2002 resulting from the dot-com implosion and wholesale reductions in high salaries. Median salaries are similarly up, increasing more than $10,000 since 2002 to $88,250.
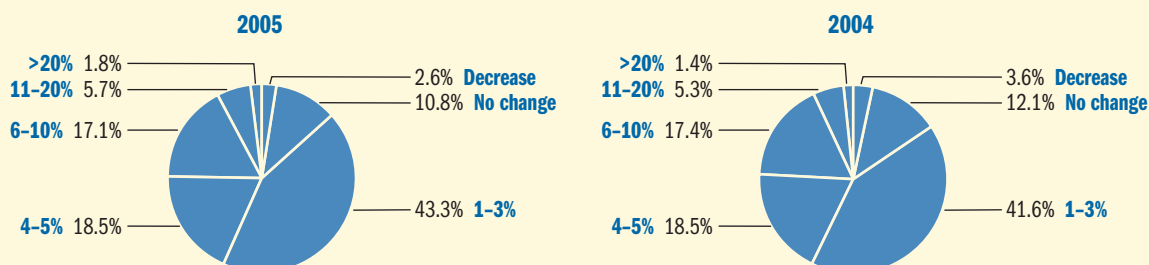
Average (Mean) Salaries

	2005	2004	2003	2002	2001
Average salary	$91,678	$89,559	$85,619	$82,997	$83,641
Change (Y–Y)	2.3%	4.6%	3.2%	-1%	

Median Salaries

	2005	2004	2003	2002
Median Salary	$88,250	$86,320	$83,000	$78,000

Another factor contributing to the modest growth in average salary is that a fair number of respondents either received no raise in 2005, or saw their salaries decrease by an outright cut or taking a new job. In 2005, 13.4 percent of TDWI's pool reported a negative change or no change in their salaries. The lion's share of salary increases fell in the 1 to 3 percent range.

Average Salary Changes

2005

>20% 1.8%
11–20% 5.7%
6–10% 17.1%
4–5% 18.5%
2.6% **Decrease**
10.8% **No change**
43.3% **1–3%**

2004

>20% 1.4%
11–20% 5.3%
6–10% 17.4%
4–5% 18.5%
3.6% **Decrease**
12.1% **No change**
41.6% **1–3%**

Compensation

Interestingly, nearly one-half of respondents reported that their 2005 salary increases did not exceed the standard wage hike in their organizations. That high figure may reflect a recognition that BI professionals are generally better compensated than other IT workers.

Did Your Base Salary Increase by More Than the Organization's Standard Wage Increase?

Not Sure 21.0%

29.4% Yes

No 49.5%
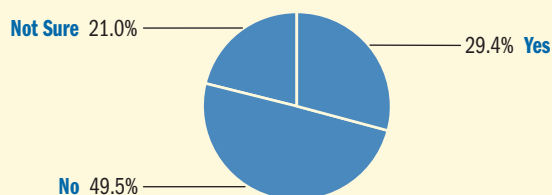
Bonuses, meanwhile, reached record levels. Bonuses—including signing, retention, holiday, profit sharing, "hot skills," and merit—grew a robust 10.5 percent, from $11,309 in 2004 to $12,497 in 2005. The percentage of people receiving bonuses increased as well, from 56.5 percent in 2004 to 59.9 percent in 2005.

Percentage Receiving Bonuses

2005	2004	2003	2002	2001
59.9	56.5	55	53	55

Average Bonuses

2005	2004	2003	2002	2001
$12,497	$11,309	$10,764	$12,276	$9,657

On the other hand, the percentage of people receiving stock options declined slightly to 23 percent, the lowest in four years, while those with supplementary "moonlighting" jobs bumped up a notch to 15 percent.

Options and Moonlighting (%)

	2005	2004	2003	2002
Percent receiving options	23	26	27	26
Percent moonlighting	15	12	13	20

Compensation

SALARY BREAKDOWNS

The year 2005 saw continued growth in salaries for coveted high-end BI positions, especially business sponsor and lead architect, which grew at 9.3 percent and 11.2 percent, respectively. For the first time, four roles—BI director, business sponsor, lead architect, and program manager—cracked the six-figure barrier.

Though its average salary increased less than 1 percent in 2005, the role of BI director once again topped the list at $117,260—and what's more, 75 percent of BI directors took home a healthy $20,104 average bonus. The role of BI director was claimed by more than 11 percent of TDWI respondents, making it clear that it's a vital and handsomely rewarded position as enterprises seek to narrow the gap between hard-core IT and business objectives and processes. BI directors are generally tasked with building enterprise information initiatives that support a plethora of applications—from customer relationship management, supply chain management, and business performance management, to driving initiatives surrounding new regulations (e.g. Sarbanes-Oxley, risk management, HIPAA, and others)—while streamlining and simplifying a large chunk of the ever-expanding IT budgets. Several CIO-level surveys now rank BI as one of the top three initiatives that CIOs are addressing.

It seems somewhat counterintuitive that the average salary of the BI director exceeds that of the BI sponsor. However, the BI director is one of the top executives in the IT department, while business sponsors are often the lower-level lieutenants of busy business executives who have bottom-line responsibility for the finances and outcome of the BI initiative.

Top Salaries and Bonuses by Key Role

Role	2005 Salary ($)	2004 Salary ($)	Change (%)	Receiving Bonus (%)	Average Bonus ($)
BI director	117,260	116,667	<1	75	20,104
Business sponsor	113,743	104,062	9.3	72	25,496
Lead architect	107,239	96,471	11.2	53	12,517
Program manager	100,950	97,215	3.8	68	15,397
Project manager	91,513	90,209	1.4	54	13,247
BI tools manager/developer^	86,757	82,246	5.5	64	9,059
Business analyst/SME	82,972	n/a*	–	63	9,361
Technical architect/systems analyst	80,984	n/a*	–	52	9,683
Data analyst/modeler	80,130	n/a*	–	57	8,653
ETL manager/developer^	79,937	73,775	8.4	55	8,397
DBA/DW administrator^	78,417	75,439	3.9	54	7,688
Business needs liaison^	76,893	72,766	5.7	58	8,871

* The names of these roles are new or revised. Year-to-year comparisons are not possible.

^ The 2004 average salary for this role differs from that published last year because two roles were combined in the 2005 survey. The 2004 figure is the combined average for the two roles.

Compensation

Pharmaceuticals widened its lead as the most lucrative industry for BI professionals. The average salary in pharmaceuticals rose 5.6 percent, from $102,181 in 2004 to $107,925 in 2005 (though it does claim just 2.8 percent of the survey population). Consulting and professional services also enjoyed a healthy jump in average salary to widen its lead over the third-place spot, software/Internet. Industries not represented in the table had statistically small samples.

Average Salary by Industry

	2005 ($)	2004 ($)	Change (%)	Respondents*(%)
Pharmaceuticals	107,925	102,181	5.6	2.8
Consulting/professional services	103,509	97,388	6.3	13.1
Software/Internet	94,775	97,844	-3.1	6.1
Financial services	93,862	95,462	-1.7	13.8
Retail/wholesale/distribution	93,165	92,984	<1	5.8
Manufacturing (non-computer)	92,646	87,450	5.9	5.7
Healthcare	90,731	87,698	3.5	8.7
Government (federal)	89,717	93,462	-4.0	6.1
Utilities	89,239	83,830	6.4	2.4
Telecommunications	88,346	82,738	6.8	2.7
Insurance	85,824	89,015	-3.6	8.7
Education	76,780	79,819	-3.8	3.8
Government (state/local)	66,142	61,032	8.4	3.8

*2005 data. Column does not total 100% because industries with low representation were excluded.

Company size also influences salaries. Except for higher-than-average salaries in the category of less than $100 million in annual revenue, TDWI data generally shows that the larger the organization, the larger the salary.

Average Salary by Company Revenues

	2005 ($)	Respondents (%)
<$100 million	94,605	19.6
$100–500 million	88,684	16.7
$500 million–1 billion	86,303	11.9
$1–5 billion	93,047	22.6
$5–10 billion	96,455	10.2
$10–50 billion	98,056	11.3
>$50 billion	105,252	7.7

Compensation

The region in which a person works is also a key factor in compensation. BI practitioners in the Northeast average six-figure salaries and earn nearly $20,000 more than their counterparts in the South. Similarly pronounced is the disparity between average salaries in the U.S. and Canada—$92,920 in the U.S. versus $75,776 in Canada.

Average Salary by Region

	2005 ($)	Respondents (%)
Northeast	100,069	16.1
Mid-Atlantic	99,846	8.4
Pacific	96,637	16.0
Southwest	92,650	7.0
Southeast	90,956	12.1
Midwest	87,261	23.8
Rocky Mountains	87,186	3.7
Central Plains	85,875	2.3
South	81,044	3.1
Canada	75,776	7.2

SALARY BY GENDER, AGE, AND EXPERIENCE

Although men earned nearly $5,500 more than women in 2005, the historical gap in salaries for men and women appears to be narrowing. Over the past four years, average salaries for female BI professionals have increased 16 percent, from $75,584 in 2002 to $87,686 in 2005. Average salaries for men rose 8.6 percent in the same time period. On the other hand, there has been little change over the last four years in the gender breakdown among BI/DW practitioners. Men held 72 percent of jobs in 2005—one percentage point less than 2002 data.

The gender gap is also seen in bonus distribution. In 2005, 62.1 percent of male respondents received a bonus averaging $13,175, while 57.3 percent of women received a bonus averaging $10,640.

Average Salary by Gender ($)

	2005	2004	2003	2002
Men	93,157	90,991	88,488	85,796
Women	87,686	85,482	79,558	75,584

Bonus Distribution and Average by Gender (2005)

	Receiving Bonus (%)	Average Bonus ($)
Men	62.1	13,175
Women	57.3	10,640

Compensation

Naturally, age and experience combine to shape one's salary. The bulk of BI professionals fall in the 36- to 45-year-old category and command an average salary of $94,283. Their greatest earning power lies ahead, though, as average salaries by age peak at more than $98,000 for those between 56 and 65. The data also shows just 1 percent of the industry is 25 years or younger; because of the small sample, the sizable jump in salaries for that age range is probably best disregarded.

Average Salary by Age

	2005 ($)	2004 ($)	Respondents* (%)
<25	61,093	50,567	1
26–35	82,572	80,939	25
36–45	94,283	93,799	42
46–55	95,600	91,972	25
56–65	98,213	97,391	6

*2005 data

Average Salary by BI Experience

	2005 ($)	2004 ($)	Respondents (%)*
1 year	83,443	90,702	9.3
2–3 years	81,346	81,447	16.2
4–6 years	87,564	83,744	30.5
7–9 years	93,198	93,802	17.3
10+ years	104,735	107,024	26.7

*2005 data

Investing years with a single company is not necessarily rewarded. In 2005, salaries for new hires were nearly as high as those paid to veterans who had invested more than 20 years with their employers. With BI skills and experience in demand, job hunters in search of a more senior position may well be rewarded with a substantial boost in salary.

Average Salary by Years at Current Company ($)

	2005	2004	2003
0–1 years	93,641	92,286	83,749
2 years	93,159	88,863	84,011
3–5 years	88,706	89,430	86,125
6–10 years	91,925	87,434	87,091
11–20 years	94,152	90,531	86,830
20+ years	94,620	93,739	84,567

Compensation

Purchasing authority usually comes with a handsome salary. Those who make buying decisions took home an average salary of $114,553 in 2005, up more than $10,000 from two years earlier. This year saw a marked jump for those who determine need, up to $89,787 from $80,937 in 2004. Offsetting those salaries are those out of the purchasing loop. Respondents answering "none of the above" averaged a $79,079 salary in 2005.

Average Salary by Purchasing Authority ($)

	2005	2004	2003
Determine need	89,787	80,937	77,292
Evaluate/recommend products or services	92,641	90,851	86,468
Final purchasing authority	114,553	115,791	102,758

Not surprisingly, companies just embarking on BI/DW implementations tend to pay less than those aggressively pursuing expansion or managing relatively mature environments. The highest salary, $94,884, went to those employed by organizations undertaking a "major overhaul" of their BI program to better support user needs.

Average Salary by BI/DW Maturity ($)

Getting serious about BI for the first time	87,061
Building or have completed first major iteration	89,832
Completed two or more relatively successful major iterations	93,375
Doing a major BI overhaul to better meet user needs	94,884
Manage relatively mature BI environment delivering significant business value	91,047

Compensation

JOB SATISFACTION

The modest salary increases awarded in 2005 may have contributed to a decline in job satisfaction. Thirteen percent ranked their job satisfaction as "low" or "very low" in 2005, up notably from 8 percent a year earlier. On the other end, 43 percent ranked their job satisfaction as "high" or "very high," down from 48 percent in 2004.

Similarly, the number of respondents who feel fairly compensated fell from 43 percent in 2004 to 41 percent; the number of those who don't believe themselves fairly compensated rose from 36 percent in 2004 to 39 percent in 2005. Oddly, though, this dissatisfaction does not appear to translate into a greater number of job-seekers. In fact, the number of respondents "definitely" looking for a new job declined from 18 percent in 2004 to 15 percent in 2005.

Please Rate Your Satisfaction in Your Current Position

	2005 (%)	2004 (%)
Very high	8	11
High	35	37
Moderate	45	44
Low	10	6
Very low	3	2

Are You Fairly Compensated?

	2005 (%)	2004 (%)
Yes	41	43
No	39	36
Not Sure	20	22

Are You Looking for a New Job outside Your Company?

	2005 (%)	2004 (%)
Yes, definitely	15	18
Somewhat, but not seriously	45	43
No	39	39

Roles and Responsibilities

PRIMARY ROLES

Largely consistent with 2004, the leading primary roles in 2005 were project manager, program manager, and BI director. The newly titled position of data acquisition (ETL) manager or developer was the fourth most prevalent role, with 9.8 percent of the total.

Primary Roles (%)	
Project manager	11.4
Program manager	11.3
BI director	11.2
Data acquisition (ETL) manager or developer	9.8
Lead architect	9.6
Technical architect or systems analyst	9.4
Data analyst and data modeler	8.3
Decision support (BI tools) manager or developer	6.8
Business analyst or subject matter expert	6.7
DW administrator or DBA	5.2
Business needs liaison or analyst	2.9
Business sponsor or driver	2.6
Data administrator and metadata	2.3
Quality assurance	1.3
BI support or training	<1
Data miner or statistician	<1

Roles and Responsibilities

SECONDARY ROLES

BI professionals are often jacks- and jills-of-all-trades. The majority—59 percent—
fulfill two to three secondary roles. Only 12 percent perform no or only one secondary
role. The average number of roles fell slightly, from 3.25 in 2004 to 3.18 in 2005.
The top secondary roles are project manager and data analyst/modeler, each at
40 percent.

Number of Secondary Roles (%)

	2005	2004
0 Roles	3	3
1 Roles	9	12
2 Roles	27	24
3 Roles	32	27
4 Roles	13	13
5 Roles	7	8
6 Roles	4	4
7 Roles	3	3
8 Roles	1	2
9 Roles	1	1
10+ Roles	1	2

Top Secondary Roles (%)

Project manager	40
Data analyst/data modeler	40
Technical architect/systems analyst	35
Business analyst/SME	30
ETL manager/developer	29
BI tools manager/developer	28
Business needs liaison/analyst	26
Lead architect	26
Program manager	25
Data/metadata administrator	22
BI support or training	19
Quality assurance	17
BI director	16
DW administrator or DBA	16
Business sponsor or driver	9
Data miner or statistician	7

Project Manager

GENERAL DESCRIPTION

- Manages a single data warehousing project
- Develops budgets
- Secures resources and personnel
- Manages a team of developers and contractors
- Prioritizes requirements, schedules tasks, communicates progress

KEY RESPONSIBILITIES

- Scopes project, manages scope changes
- Prioritizes requirements, manages expectations
- Develops plans and schedules
- Establishes budgets
- Hires and manages personnel
- Communicates progress
- Coordinates training
- Measures ROI

KEY SKILLS

- Project management
- Communication
- Leadership
- Decision making
- Delegation
- Knowledge and design of data warehouses
- Flexibility, diplomacy, and problem-solving

KEY DELIVERABLES

- Project and resource plans
- Funding requests
- Success metrics
- Training plans
- Scope documentation
- Status reports
- Acceptance criteria

COMMON SECONDARY ROLES

Average Number of Secondary Roles—3.0

Business needs liaison/analyst (33%)
Business analyst/subject matter expert (30%)
Program manager (26%)
Technical architect/systems analyst (26%)
Data analyst/modeler (25%)

Project Manager Averages

Annual Salary	$91,513
Bonuses	$13,247
Average Salary Increase from 2004	4.8%
Age	44.4 years
BI Experience	6.1 years
Number of Certifications	0.9
Years at Company	6.9 years
Percent Getting a Bonus	54%
Types of Bonuses	individual (58%), company (51%), profit sharing (19%), team (18%), retention (3%)
Job Satisfaction	very high or high 39%, low or very low 15%
Fairly Compensated?	yes 33%, no 39%, unsure 28%
Looking for New Job?	yes 18%, somewhat 44%, no 38%
Gender	male 69%, female 31%
Level of Education	bachelor's degree 45%, master's degree 39%, associate's degree 9%, PhD 2%, high school 5%
Outside Income?	yes 17%
Options?	yes 20%
Purchasing Authority	final purchasing authority 5%, evaluate/recommend products 70%, determine need 13%, none 11%
Professional Background	technical 73%, business 19%, academic 3%, other 5%
Time Spent on BI Projects	full 44%, three-quarters 14%, one-half 16%, one-quarter 19%, none 7%

Program Manager

GENERAL DESCRIPTION

- Oversees the management and direction of multiple data warehousing projects
- Aligns data warehousing projects with business strategy
- Works with BI director to liaison with business sponsors and executives
- Works with BI director to secure and maintain funding
- Manages BI stewards and steering committees

KEY RESPONSIBILITIES

- Staffs project teams
- Facilitates the prioritization of projects and requirements among competing business interests
- Coordinates with various business and technical groups whose support is needed to build or deploy data warehouses
- Establishes standards for technology and business processes
- Coordinates and aligns multiple data warehousing projects
- Measures results

KEY SKILLS

- Knowledge of business
- Prior data warehousing experience
- Communications and marketing
- Managing multiple project teams
- Managing multiple, complex enterprise projects
- Strategic and financial planning

KEY DELIVERABLES

- Strategic plans
- Steering committee priorities and plans
- Funding requests
- Corporate budgets
- Return on investment reports

COMMON SECONDARY ROLES

Average Number of Secondary Roles—3.2

Project manager (60%)
Business needs liaison/analyst (36%)
Business analyst/subject matter expert (33%)

Program Manager Averages

Annual Salary	$100,950
Bonuses	$15,397
Average Salary Increase from 2004	5%
Age	41.7 years
BI Experience	6.8 years
Number of Certifications	0.9
Years at Company	6.9 years
Percent Getting a Bonus	68%
Types of Bonuses	individual (71%), company (58%), team (25%), profit sharing (18%), retention (6%)
Job Satisfaction	very high or high 46%, low or very low 8%
Fairly Compensated?	yes 43%, no 41%, unsure 16%
Looking for New Job?	yes 12%, somewhat 52%, no 36%
Gender	male 74%, female 26%
Level of Education	bachelor's degree 52%, master's degree 34%, associate's degree 8%, high school 4%, PhD 1%
Outside Income?	yes 10%
Options?	yes 29%
Purchasing Authority	final purchasing authority 15%, evaluate/recommend products 65%, determine need 13%, none 7%
Professional Background	technical 69%, business 22%, academic 2%, other 6%
Time Spent on BI Projects	full 43%, three-quarters 15%, one-half 18%, one-quarter 20%, none 4%

BI Director

GENERAL DESCRIPTION

- Owns or directly shapes the BI strategy, architecture, and budget
- Oversees program and project managers, architects, and specialists
- Serves as liaison between the business and the BI team
- Develops marketing and communications program for the BI program
- Communicates benefits of the BI environment to executives and users

KEY RESPONSIBILITIES

- Develops the vision and business case for the BI program
- Sells the BI program to executives and other managers
- Works with architects to create a high-level, enterprise architecture to support a growing portfolio of BI applications
- Hires and oversees BI program and project managers and architects
- Interfaces with business sponsors and drivers and steering committees
- Meets business criteria for successful BI implementations

KEY SKILLS

- Sales
- Marketing
- Communications
- Leadership
- Delegation
- Knowledge and design of data warehouses
- Flexibility, diplomacy, and problem-solving

KEY DELIVERABLES

- BI funding
- BI strategy
- BI budget
- BI architecture
- BI team

COMMON SECONDARY ROLES

Average Number of Secondary Roles—3.3

Program manager (47%)
Project manager (42%)
Chief architect (32%)

BI Director Averages

Annual Salary	$117,260
Bonuses	$20,104
Average Salary Increase from 2004	<1%
Age	43.0 years
BI Experience	8.4 years
Number of Certifications	1
Years at Company	6.4 years
Percent Getting a Bonus	75%
Types of Bonuses	company (52%), individual (50%), team (24%), profit sharing (19%), retention (6%)
Job Satisfaction	very high or high 57%, low or very low 8%
Fairly Compensated?	yes 53%, no 31%, unsure 16%
Looking for New Job?	yes 13%, somewhat 39%, no 47%
Gender	male 74%, female 26%
Level of Education	bachelor's degree 56%, master's degree 32%, associate's degree 5%, high school 5%, PhD 1%
Outside Income?	yes 8%
Options?	yes 34%
Purchasing Authority	final purchasing authority 21%, evaluate/recommend products 74%, determine need 3%, none 2%
Professional Background	technical 67%, business 27%, academic 2%, other 3%
Time Spent on BI Projects	full 53%, three-quarters 18%, one-half 11%, one-quarter 16%, none 1%

Lead Architect

GENERAL DESCRIPTION

- Coordinates the work of technical, data, ETL, and BI architects
- Oversees the design of the data and technical architecture for the data warehouse
- Oversees the development of logical and physical data models, ETL scripts, metadata definitions and models, queries and reports, schedules, work processes, and maintenance procedures
- Ensures proper backup and recovery processes
- Supervises selection of hardware, storage, and software products

KEY RESPONSIBILITIES

- Creates a robust, sustainable architecture that supports requirements and provides for expansion given budgetary constraints and availability of data and skilled resources
- Evaluates and selects various data warehousing tools and components
- Coordinates multiple architects responsible for development, integration, administration, and evolution of the data warehouse

KEY SKILLS

- Prior experience building data warehouses
- Data modeling, database administration, and performance tuning
- SQL, ETL, OLAP
- Operating platforms
- Metadata management
- Use-case analysis
- Conceptual and analytic skills
- Knowledge of business domain
- Ability to balance theory and practical reality

KEY DELIVERABLES

- Architecture and strategy documentation
- Use-case analysis report
- Capacity planning analysis
- Job development guidelines
- Administrative management plan

COMMON SECONDARY ROLES

Average Number of Secondary Roles—3.6

Data analyst/data modeler (53%)
Technical architect/systems analyst (47%)
Data acquisition (ETL) developer/manager (35%)
Project manager (33%)

Lead Architect Averages

Annual Salary	$107,239
Bonuses	$12,517
Average Salary Increase from 2004	3.4%
Age	42.8 years
BI Experience	9.0 years
Number of Certifications	1.2
Years at Company	6.5 years
Percent Getting a Bonus	53%
Types of Bonuses	company (58%), individual (54%), profit sharing (26%), team (22%), retention (1%)
Job Satisfaction	very high or high 42%, low or very low 20%
Fairly Compensated?	yes 41%, no 33%, unsure 26%
Looking for New Job?	yes 44%, somewhat 42%, no 14%
Gender	male 80%, female 20%
Level of Education	bachelor's degree 58%, master's degree 28%, associate's degree 7%, PhD 2%, high school 5%
Outside Income?	yes 16%
Options?	yes 24%
Purchasing Authority	final purchasing authority 5%; evaluate/recommend products 81%, determine need 5%, None 9%
Professional Background	technical 91%, business 5%, academic 2%, other 2%
Time Spent on BI Projects	full 60%, three-quarters 16%, one-half 10%, one-quarter 13%, none 1%

Data Acquisition (ETL) Developer/Manager

GENERAL DESCRIPTION

Responsible for the scripts required to extract, transform, clean, and move data and metadata so they can be loaded into a data warehouse, data mart, or operational data store

KEY RESPONSIBILITIES

Data acquisition managers oversee a team of ETL developers who have the following responsibilities:

- Work with business requirements analyst to identify and understand source data systems
- Map source system data to data warehouse models
- Develop and test extraction, transformation, and loading (ETL) processes
- Define and capture metadata and rules associated with ETL processes
- Adapt ETL processes to accommodate changes in source systems and new business user requirements

KEY SKILLS

- Understand source and target data structures, ETL processes, and products
- Knowledge of 3GL/4GL programming languages
- Strong problem-solving and metadata skills

KEY DELIVERABLES

- Complete mapping and transformation programs
- Schedules extraction and load processes
- ETL metadata documented and maintained in metadata repository
- Database loadable files

COMMON SECONDARY ROLES

Average Number of Secondary Roles—3.1

Data analyst/data modeler (63%)
Technical architect/systems analyst (49%)
Data administrator and metadata (28%)
Decision support (BI tools) manager/developer (28%)

Data Acquisition (ETL) Developer/Manager Averages

Annual Salary	$79,937
Bonuses	$8,397
Average Salary Increase from 2004	3.1%
Age	38.3 years
BI Experience	5.8 years
Number of Certifications	0.8
Years at Company	5.8 years
Percent Getting a Bonus	55%
Types of Bonuses	company (61%), individual (55%), profit sharing (24%), team (19%), retention (5%)
Job Satisfaction	very high or high 41%, low or very low 9%
Fairly Compensated?	yes 36%, no 47%, unsure 17%
Looking for New Job?	yes 14%, somewhat 46%, no 41%
Gender	male 76%, female 24%
Level of Education	bachelor's degree 50%, master's degree 42%, associate's degree 5%, high school 3%
Outside Income?	yes 19%
Options?	yes 21%
Purchasing Authority	final purchasing authority 1%, evaluate/recommend products 58%, determine need 16%, none 25%
Professional Background	technical 79%, business 10%, academic 7%, other 3%
Time Spent on BI Projects	full 76%, three-quarters 12%, one-half 8%, one-quarter 4%

Technical Architect/Systems Analyst

GENERAL DESCRIPTION

- Defines and documents the technical architecture of the data warehouse, including the physical components and their functionality
- Evaluates, selects, tests, and optimizes harware and software products

KEY RESPONSIBILITIES

- Assesses current technical architecture
- Estimates system capacity to meet near- and long-term processing requirements
- Writes specifications for client machines, application servers, database servers, and networks

KEY SKILLS

- Technical design skills
- Understanding of the capabilities of vendor infrastructure products, including SMP and MPP systems
- Knowledge of data warehousing architectural approaches
- Conceptual and analytical skills

KEY DELIVERABLES

- Capacity planning estimates
- Technical architecture documents
- Hardware and software product recommendations
- Cost estimates for technical components
- Regular performance and capacity planning audits

COMMON SECONDARY ROLES

Number of Secondary Roles—2.8

Data analyst/modeler (35%)
Data acquisition (ETL) manager/developer (26%)
Project manager (25%)
Lead architect (24%)

Technical Architect/Systems Analyst Averages	
Annual Salary	$80,984
Bonuses	$9,683
Average Salary Increase from 2004	3.7%
Age	40.8 years
BI Experience	6.7 years
Number of Certifications	1.5
Years at Company	7.0 years
Percent Getting a Bonus	52%
Types of Bonuses	individual (69%), company (57%), team (31%), profit sharing (22%), retention (4%)
Job Satisfaction	very high or high 40%, low or very low 14%
Fairly Compensated?	yes 41%, no 41%, unsure 18%
Looking for New Job?	yes 15%, somewhat 53%, no 32%
Gender	male 78%, female 22%
Level of Education	bachelor's degree 54%, master's degree 26%, associate's degree 7%, PhD 4%, high school 9%
Outside Income?	yes 19%
Options?	yes 16%
Purchasing Authority	final purchasing authority 3%, evaluate/recommend products 61%, determine need 11%, none 25%
Professional Background	technical 80%, business 6%, academic 8%, other 5%
Time Spent on BI Projects	full 35%, three-quarters 19%, one-half 16%, one-quarter 21%, none 9%

Data Analyst/Modeler

GENERAL DESCRIPTION

Develops, manages, and updates data models, including physical and logical models of the data warehouse, data mart, and staging area, and sometimes the operational data store and source systems

KEY RESPONSIBILITIES

- Interviews business users to obtain data requirements for new analytic applications
- Designs conceptual and logical models for the data warehouse or data mart
- Communicates physical database designs to database administrator
- Evolves models to meet new and changing business requirements
- Develops process for capturing and maintaining metadata from all data warehousing components

KEY SKILLS

- Strong conceptual, communications, and technical skills
- Ability to translate business needs into technical solutions
- Strong relational and dimensional data modeling and database design skills

KEY DELIVERABLES

- Source system recommendations
- Model management standards
- Logical and physical data models
- Meta model for metadata repository

COMMON SECONDARY ROLES

Average Number of Secondary Roles—3.1

Data administrator and metadata (47%)
Technical architect/systems analyst (33%)
Business analyst/subject matter expert (31%)

Data Analyst/Modeler Averages

Annual Salary	$80,130
Bonuses	$8,653
Average Salary Increase from 2004	3.4%
Age	41.8 years
BI Experience	5.9 years
Number of Certifications	1.2
Years at Company	7.3 years
Percent Getting a Bonus	57%
Types of Bonuses	company (62%), individual (49%), team (25%), profit sharing (20%), retention (4%)
Job Satisfaction	very high or high 30%, low or very low 13%
Fairly Compensated?	yes 40%, no 39%, unsure 21%
Looking for New Job?	yes 17%, somewhat 48%, no 35%
Gender	male 58%, female 42%
Level of Education	bachelor's degree 58%, master's degree 28%, associate's degree 9%, high school 5%, PhD 1%
Outside Income?	yes 17%
Options?	yes 17%
Purchasing Authority	final purchasing authority 0%, evaluate/recommend products 60%, determine need 10%, none 30%
Professional Background	technical 74%, business 17%, academic 8%, none 1%
Time Spent on BI Projects	full 44%, three-quarters 19%, one-half 22%, one-quarter 11%, none 3%

Decision Support (BI Tools) Manager/Developer

GENERAL DESCRIPTION

- Works with end users and business analysts to ensure tight fit between BI environment and business requirements
- Designs and manages the BI tools and applications environment
- Configures BI tools, develops the semantic layer and metadata, and creates reports and report definitions
- Creates and delivers end-user training and documentation and provides second-line support to power users who develop reports on behalf of their departmental colleagues

KEY RESPONSIBILITIES

- Installs, configures, deploys, and tunes BI tools and analytic servers
- Troubleshoots BI tool problems and tunes for performance
- Develops multidimensional semantic layer and BI query objects for end users
- Creates reports and report templates
- Helps business users select the appropriate BI tool(s)
- Develops and manages BI training, documentation, and help desk capabilities

KEY SKILLS

- Translates business questions and requirements into reports, views, and BI query objects
- Knowledge of BI tool architectures, functions, and features
- Understands SQL and relational and multidimensional designs
- Strong problem-solving and metadata skills
- Understands BI tool architecture, functions, features
- Customizes BI tool to meet user needs

KEY DELIVERABLES

- Standardized use of BI tools and semantic layers throughout the organization
- Repository of best practices on how to install, configure, and use the BI tool for more productivity
- Reports, templates, and analytical views
- BI training, documentation, and help desk support

COMMON SECONDARY ROLES

Average Number of Secondary Roles—3.5

Data analyst/modeler (50%)
BI support/training (43%)
Data acquisition (ETL) manager/developer (40%)
Project manager (37%)

Decision Support (BI Tools) Manager/Developer Averages

Annual Salary	$86,757
Bonuses	$9,059
Average Salary Increase from 2004	6.2%
Age	38.9 years
BI Experience	5.9 years
Number of Certifications	1.0
Years at Company	5.8 years
Percent Getting a Bonus	64%
Types of Bonuses	company (63%), individual (58%), team (23%), profit sharing (18%), retention (3%)
Job Satisfaction	very high or high 43%, low or very low 11%
Fairly Compensated?	yes 45%, no 34%, unsure 20%
Looking for New Job?	yes 14%, somewhat 43%, no 43%
Gender	male 72%, female 28%
Level of Education	bachelor's degree 56%, master's degree 38%, associate's degree 4%, PhD 1%, high school 2%
Outside Income?	yes 12%
Options?	yes 21%
Purchasing Authority	final purchasing authority 3, evaluate/recommend products 81%, determine need 3%, none 13%
Professional Background	technical 60%, business 29%, academic 8%, other 3%
Time Spent on BI Projects	full 65%, three-quarters 20%, one-half 11%, one-quarter 3%

Business Analyst/Subject Matter Expert

GENERAL DESCRIPTION

Business user who has detailed knowledge of various business processes and the underlying data that supports them

KEY RESPONSIBILITIES

- Works with data analysts/modelers and ETL specialists to uncover the appropriate sources of data for a proposed application or data warehousing extension; evaluate the condition of those data sources; prioritize the data sources; and define appropriate transformations to standardize the data and map it into a target model

- Works closely with data analysts/modelers to define appropriate logical models that accurately reflect existing business processes

- Assumes ownership of one or more data elements and is the central contact point in the organization for information about the origins and revisions to those data elements; responsible for the accuracy of the data in these elements, both within the data warehouse and in downstream applications and reports

KEY SKILLS

- Deep knowledge of the business, core processes, and the data required to drive those processes

- Deep understanding of the source data, its strengths, weaknesses, semantics, and formats

- Ability to work with and effectively communicate with technical people

- Ability to free up time to answer hundreds of detailed questions about the nature of the data and the processes it supports

KEY DELIVERABLES

- Identifies and prioritizes data sources to support new applications and reports

- In conjunction with data analysts, SMEs create a profile of potential data sources that describes and explains attributes, dependencies, null values, and other nuances in the data

- In conjunction with data analysts, SMEs develop validation routines to ensure the accuracy of data

COMMON SECONDARY ROLES

Average Number of Secondary Roles—3.4

Business needs liaison/analyst (60%)
Project manager (41%)
BI support/training (37%)
Data analyst/modeler (30%)

Business Analyst/Subject Matter Expert Averages

Annual Salary	$82,972
Bonuses	$9,361
Average Salary Increase from 2004	3.6%
Age	41.0 years
BI Experience	6.2 years
Number of Certifications	0.9
Years at Company	6.5 years
Percent Getting a Bonus	63%
Types of Bonuses	company (53%), individual (61%), team (22%), profit sharing (22%), retention (1%)
Job Satisfaction	very high or high 40%, low or very low 18%
Fairly Compensated?	yes 34%, no 44%, unsure 22%
Looking for New Job?	yes 13%, somewhat 51%, no 36%
Gender	male 62%, female 38%
Level of Education	bachelor's degree 52%, master's degree 37%, associate's degree 5%, PhD 2%, high school 5%
Outside Income?	yes 16%
Options?	yes 23%
Purchasing Authority	final purchasing authority 1%, evaluate/recommend products 56%, determine need 19%, none 24%
Professional Background	technical 43%, business 43%, academic 5%, other 9%
Time Spent on BI Projects	full 46%, three-quarters 13%, one-half 19%, one-quarter 17%, none 5%

DW Administrator/DBA

GENERAL DESCRIPTION

- Tests, monitors, manages, and validates data ware-house activity, including data extraction, transformation, movement, loading, cleansing, and updating processes
- Ensures the data warehouse meets service-level requirements
- Designs physical model of DW databases (DBA)
- Tunes DW database for performance, creates capacity plans, and manages data security (DBA)

KEY RESPONSIBILITIES

- Monitors business use and performance of the data warehouse and provides feedback to data warehouse architects, developers, and database administrators
- Develops, manages, schedules, and documents data warehouse operations and tasks, including extraction, movement, loading, archival, security, backup, and aggregate table creation
- Manages requests for changes and prioritizes work based on business needs and available resources

KEY SKILLS

- Prior experience building and managing data warehouses
- Data modeling
- Database administration and performance tuning
- SQL, ETL, OLAP
- Operating platforms
- Use-case analysis
- Conceptual and analytic skills
- Knowledge of business domain
- Database tuning, capacity planning, security, and usage management

KEY DELIVERABLES

- Maintenance processes and procedures
- Periodic operational tests
- Performance monitoring and tuning
- Disaster recovery plans
- Service-level agreements
- Change request log
- Capacity planning
- Security management

COMMON SECONDARY ROLES

Average Number of Secondary Roles—3.3

Data analyst/modeler (46%)
Data administrator and metadata (40%)
Technical architect/systems analyst (38%)
Decision support (BI tools) manager/developer (37%)
Data acquisition (ETL) manager/developer (35%)

DW Administrator/DBA Averages

Annual Salary	$78,417
Bonuses	$7,688
Average Salary Increase from 2004	4.1%
Age	42.9 years
BI Experience	5.6 years
Number of Certifications	0.9
Years at Company	8.0 years
Percent Getting a Bonus	54%
Types of Bonuses	company (56%), individual (46%), team (20%), profit sharing (24%), retention (4%)
Job Satisfaction	very high or high 47%, low or very low 13%
Fairly Compensated?	yes 38%, no 37%, unsure 26%
Looking for New Job?	yes 14%, somewhat 43%, no 43%
Gender	male 76%, female 24%
Level of Education	bachelor's degree 44%, master's degree 24%, associate's degree 16%, high school 13%, PhD 3%
Outside Income?	yes 20%
Options?	yes 12%
Purchasing Authority	final purchasing authority 0%, evaluate/recommend products 74%, determine need 8%, none 18%
Professional Background	technical 83%, business 6%, academic 4%, other 6%
Time Spent on BI Projects	full 40%, three-quarters 20%, one-half 18%, one-quarter 16%, none 5%

About TDWI

The Data Warehousing Institute™ (TDWI), a division of 101communications, is the premier provider of in-depth, high-quality education and research in the business intelligence and data warehousing industry. TDWI is dedicated to educating business and information technology professionals about the strategies, techniques, and tools required to successfully design, build, and maintain business intelligence and data warehousing solutions. It also fosters the advancement of business intelligence and data warehousing research and contributes to knowledge transfer and the professional development of its Members. TDWI sponsors and promotes a worldwide Membership program, quarterly educational conferences, regional educational seminars, onsite courses, solution provider partnerships, an awards program for best practices, resourceful publications, an in-depth research program, and a comprehensive Web site.

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