



The Osnabrück University BI-Case: Targets, Implementation, Experiences, Recommendations

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Paris, 6th – 7th March 2014

Osnabrück University

- **Enrollment:** 11.790 students
- **Programs:** 181
(72 undergraduates / 102 graduate / 7 PhD)
- **Employees:** 1680
(957 academic / 723 non-academic)
- **IT staff:** 60 FTE (<5 BI professionals)
in three technology departments
- **Our major BI systems:**
 - Oracle data base (11g)
 - IBM Cognos BI (10.2)
 - Informatica PowerCenter (ETL) (9.0)

Our target (groups)?

BI-Approach and BI-Targets

- (1) Address all levels of decision-making
- (2) Integrate quantitative and qualitative data
- (3) From all operational systems
- (4) Provide standard and analytical reporting
- (5) Support operational and strategical decisions

(1) Levels of decision-making in Higher Education

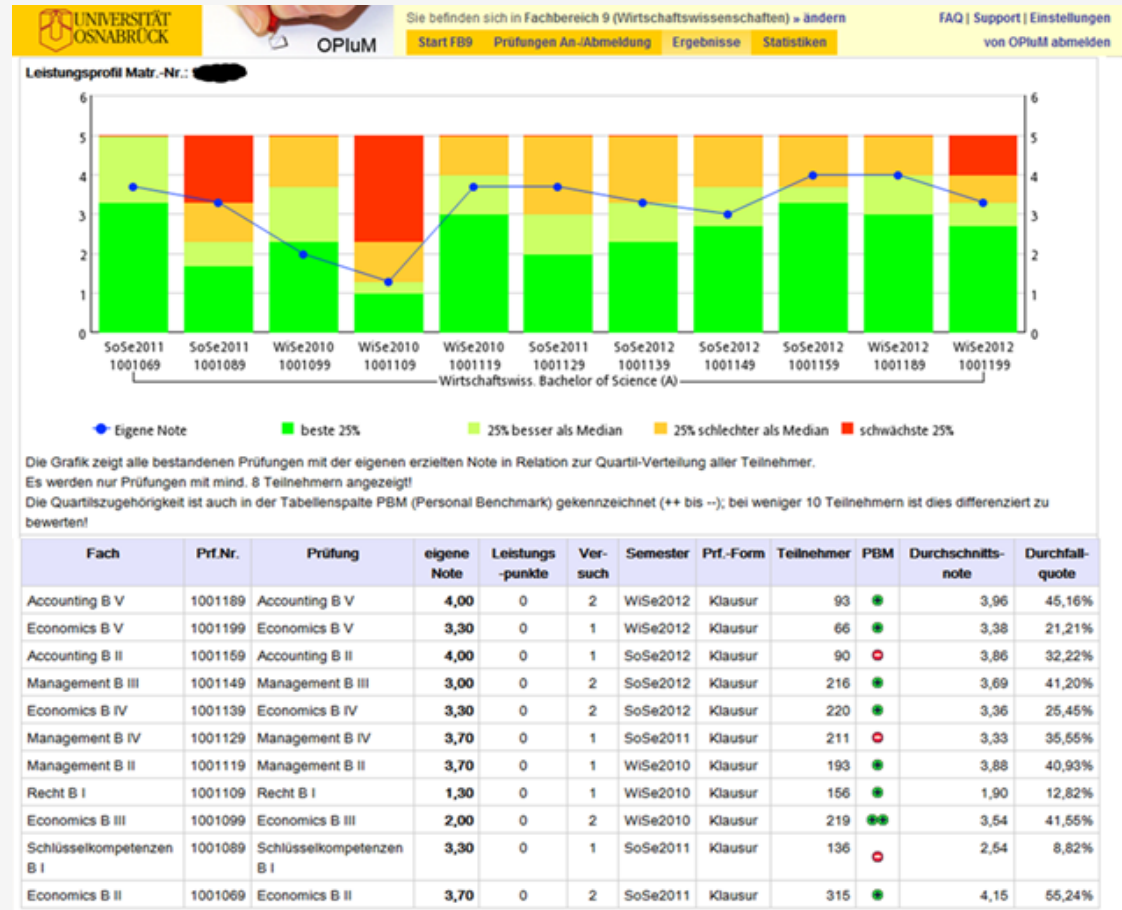




Students

How do I perform compared to the others?

- „OPIuM“ – collection of reports related to exams
- mainly personalized standard reporting to control studies and monitor performance
- Cognos reports are integrated in Campus Management System
- Single-SignOn
www.myuos.de





Students

How many students use
OPIuM performance statistics?

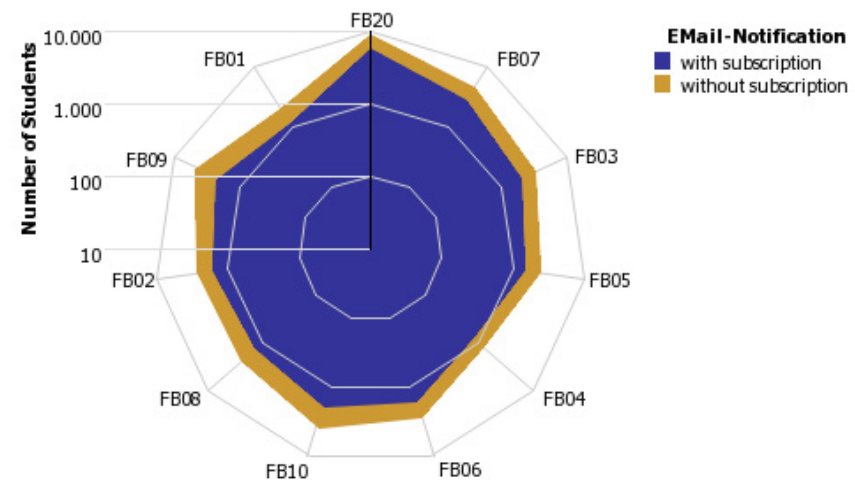
OPIuM-Performance-Statistics

Students: Examination Results Notification service per School (FB)

This statistic per school shows, how many students (already) accessed online their examination results.

The inner (blue) area indicates those students having subscribed to the automatic email notification in case of newly published examination results.
(The scale is logarithmic!)

count	EMail-Notification		Sum
	with subscription	without subscription	
FB01	1.130	799	1.929
FB02	1.626	1.040	2.666
FB03	2.056	1.231	3.287
FB04	790	422	1.212
FB05	1.478	968	2.446
FB06	1.604	1.253	2.857
FB07	2.792	1.613	4.405
FB08	1.271	1.173	2.444
FB09	2.196	2.529	4.725
FB10	1.915	1.945	3.860
FB20	5.737	3.450	9.187
Sum	22.595	16.423	39.018



- students with/without e-mail notification by faculty

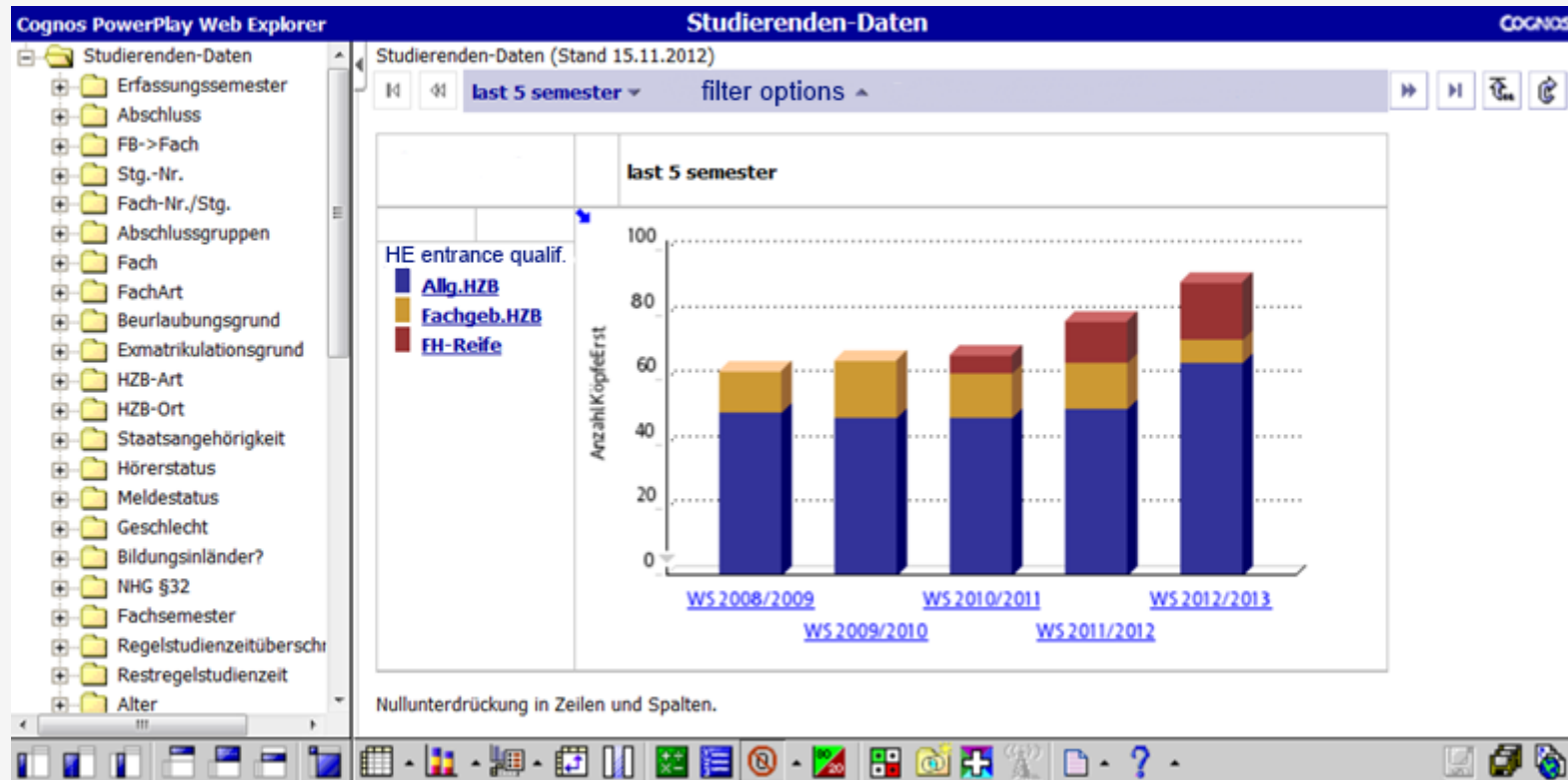
(1) Levels of decision-making in Higher Education





Lecturers

Students' knowledge background/skills



- HE entrance qualifications changes
- Lectures must react on changes by offering preparatory courses



Lecturers

How many students retrieved exam results?

Ergebnis-Abfrage-Statistik

Der Bericht zeigt, wieviele der Angemeldeten einer Teilfachprüfung bereits ihr vorliegendes Ergebnis online abgerufen haben.

Sortierung: zuletzt aktualisiert (absteigend), Teilfach

Stand: 08.04.2013, 14:16:00 Uhr

Exam – Results – Retrieval Statistic

Fachbereich: FB09

zuletzt aktualisiert	Teilfach	vom	Anzahl Abrufe	von Angemeldeten	in %	Korr.-Dauer
19.03.13	ATLANTIS - Informationsverarbeitung in Dienstleistungsbetrieben	29.01.13	1	1	100%	49 Tage
	ATLANTIS - Informationsverarbeitung in Dienstleistungsbetrieben (WIB5)	29.01.13	4	4	100%	49 Tage
	ATLANTIS-Mobile Business (WIB5)	29.01.13	3	3	100%	49 Tage
	E-Commerce (VL)	29.01.13	1	1	100%	49 Tage
13.03.13	ABWL-Seminar {Strategy and Competitive Analysis (MaM6)}	15.02.13	2	2	100%	26 Tage
	ABWL-Zweit-Seminar {Strategy and Competitive Analysis (MaM6)}	15.02.13	1	1	100%	26 Tage
	Management M VI {Seminar Strategy and Competitive Analysis}	15.02.13	6	7	86%	26 Tage
12.03.13	Projektmanagement 1 (WIM2)	22.02.13	1	1	100%	18 Tage
	Recht B I {Zivilrecht, Gesellschaftsrecht und Öffentliches Recht}	13.02.13	195	203	96%	26 Tage
	Wirtschaftsinformatik M II {Projektmanagement}	22.02.13	13	15	87%	18 Tage
11.03.13	Operatives Controlling I (AcB5)	20.02.13	3	4	75%	19 Tage
	Operatives Controlling II (AcB5)	20.02.13	5	6	83%	19 Tage
	Strategisches Controlling I (AcB5)	20.02.13	3	4	75%	19 Tage
07.03.13	Internationale Rechnungslegung (AcB3)	11.02.13	1	2	50%	24 Tage
	Konzernrechnungslegung (AcB3)	11.02.13	4	5	80%	24 Tage
01.03.13	Kapitalmarkt- und Finanzierungstheorie	22.02.13	1	2	50%	7 Tage

Last
Update

Exams

Exam Date

No of exam results retrieved

No of examinee (total)

Days needed for Proof reading



Lecturers

Who will demand which elective courses when?

Demand Prediction 1: AVWL-Seminar-Electives

based on uniform distribution

and temporally uniform distribution in relation to missing ECTS

Stand: 21. Dezember 2009

Elective	SS2010	WS10/11	SS2011	WS11/12	SS2012	WS12/13	Sum	Share
Auwi	24,34	20,60	14,38	8,15	3,50	0,72	71,69	42,91%
Fiwi	10,62	9,61	7,11	4,60	1,74	0,46	34,13	20,43%
Theo	13,22	9,90	7,77	4,75	1,86	0,36	37,86	22,66%
WiPol	8,03	6,26	4,22	2,88	1,66	0,34	23,39	14,00%
Sum	56,21	46,37	33,48	20,38	8,77	1,87	167,08	100,00%

Demand Prediction 2: AVWL-Seminar-Electives

based on previous elections (multiple)

and temporally uniform distribution in relation to missing ECTS

Stand: 21. Dezember 2009

Elective	SS2010	WS10/11	SS2011	WS11/12	SS2012	WS12/13	Sum	Share
auwi	48,3	40,3	27,8	15,9	5,9	1,5	139,8	62,22%
fiwi	6,9	5,9	3,4	1,7	0,2	0	18	8,01%
theo	17,8	10,8	9,3	5,4	1,4	0,2	44,9	19,98%
wipo	9,8	5,8	2,8	2,4	0,9	0,3	22	9,79%
Sum	82,8	62,8	43,3	25,4	8,4	2	224,7	100,00%

Lecturers

What about course performance statistics?

Prüfungs-Statistik

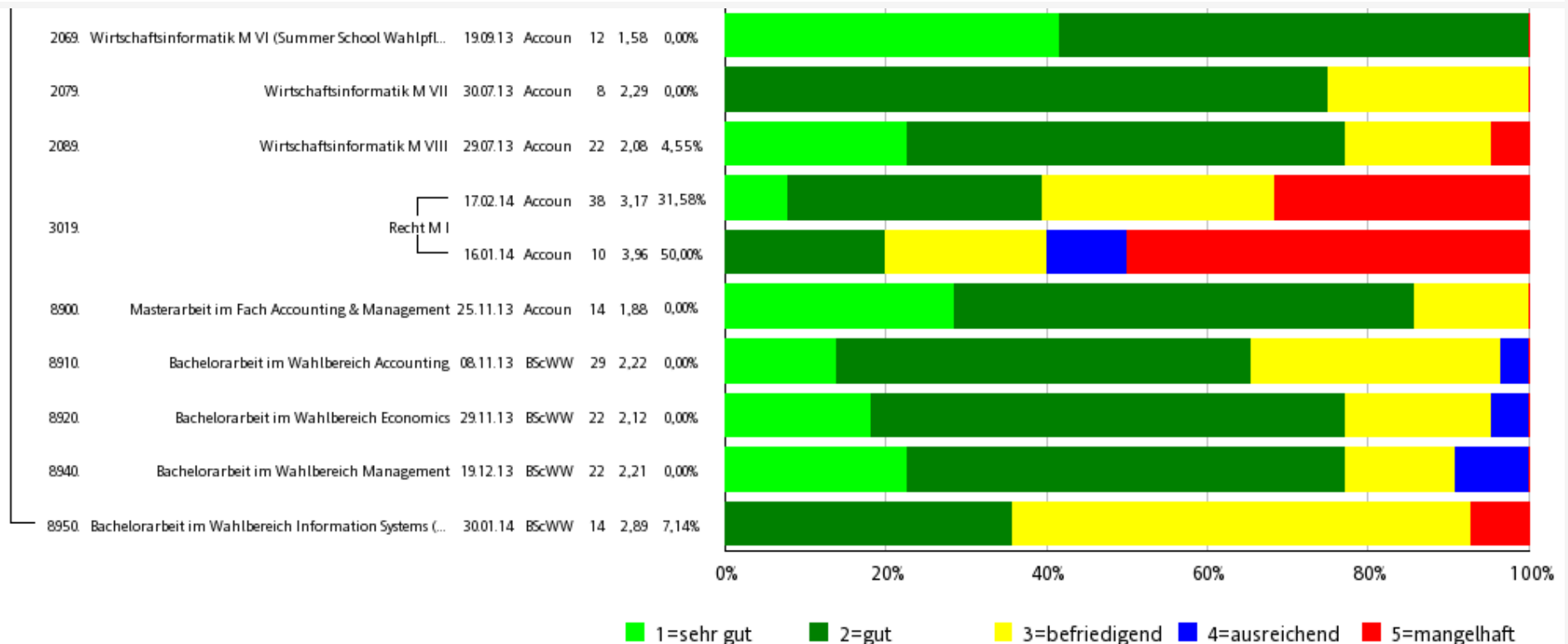
Stand: 03.03.14, 17:51 Uhr

Prüfungs-Ergebnisse (auf Konten verbucht)

Accounting & Economics, Accounting & Management, Applied Economics, Betriebswirtsch., BScWW, Information Systems, IS, KFWWL, NFWiWi, Volkswirtschaft, Wirtschaftswiss. - SS 2013 (nur Ergebnisse mit mind. 8 Teilnehmern!)

Unbenotete Studienleistungen sind von dieser Auswertung herausgenommen!

Statistik berücksichtigt ausschließlich Teilnehmer aus dem Fachbereich, der die Prüfung anbietet.





Lecturers

VOTE: preference and performance driven assignment of scarce teaching resources

Bewerber-Statistik

OPIuM-Voting: Proseminar-BSc-WiWi (SS 2014): 11.01.14-19.01.14

Proseminar-BSc-WiWi
SS 2014
11.01.2014 - 19.01.2014

Stand: 03.03.14, 15:55 Uhr

Verfahrens-Statistik	Notenprio	Prioprio	Prioprio2
Priorität			
	0		0
1	160	165	162
2	9	4	5
3	5	7	6
4	4	4	3
5	3	2	3
6		2	
7	1	2	3
Summe	182	186	182

preference vs.
performance
driven resource
allocation

Stand der (virtuellen) leistungs-orientierten Verteilung per: 03.02.14 17:37

SBNR	SBTEXT	KAPAZ	ANZVERTEILT	MINRANG	MAXRANG	MINNOTE	MAXNOTE
13	Prof. Dr. Baumgartner (BWL/Marketing)	32	32	3	116	1,875	3,18333333
15	Prof. Dr. Grundke (BWL/Banken und Finanzierung)	32	32	12	162	2,11666667	3,62857143
17	Prof. Dr. Scholze (BWL/International Accounting)	32	32	18	179	2,3	5
22	Prof. Dr. Dinger (VWL/Makroökonomische Theorie)	32	32	1	161	1,73333333	3,61666667
25	Prof. Dr. Wilde (VWL/Statistik und Ökonometrie)	32	18	9	175	2,075	4
27	Prof. Dr. Gaube (VWL/Finanzwissenschaft)	32	32	2	159	1,8	3,58
34	Prof. Dr. Thomas (WI/Informationsmanagement) [a.o. WiWi-Zusatzplätze, zusammen mit Proseminar WI]	12	4	176	182	5	5
Summe		204	182				

Stand der (virtuellen) Prioritäts-orientierten Verteilung per: 03.02.14 17:37

SBNR	SBTEXT	KAPAZ	ANZVERTEILT	MINRANG	MAXRANG	MINNOTE	MAXNOTE
13	Prof. Dr. Baumgartner (BWL/Marketing)	32	32	3	116	1,875	3,18333333
15	Prof. Dr. Grundke (BWL/Banken und Finanzierung)	32	32	12	173	2,11666667	3,85
17	Prof. Dr. Scholze (BWL/International Accounting)	32	30	18	172	2,3	3,8
22	Prof. Dr. Dinger (VWL/Makroökonomische Theorie)	32	32	1	161	1,73333333	3,61666667
25	Prof. Dr. Wilde (VWL/Statistik und Ökonometrie)	32	17	9	175	2,075	4
27	Prof. Dr. Gaube (VWL/Finanzwissenschaft)	32	32	2	159	1,8	3,58
90	nicht belegt	0	7	176	182	5	5
Summe		192	182				

Alternativen	Priorität	1	2	3	4	5	6	7	Summe Zusagen
	Kapazität	beantragt	zugesagt	beantragt	zugesagt	beantragt	zugesagt	beantragt	zugesagt
13	Prof. Dr. Baumgartner (BWL/Marketing)	32	40	32	24	0	31	0	32
15	Prof. Dr. Grundke (BWL/Banken und Finanzierung)	32	34	32	38	0	40	0	32
17	Prof. Dr. Scholze (BWL/International Accounting)	32	28	25	16	2	22	4	32
22	Prof. Dr. Dinger (VWL/Makroökonomische Theorie)	32	37	32	39	0	41	0	32
25	Prof. Dr. Wilde (VWL/Statistik und Ökonometrie)	32	15	15	26	2	10	3	26
27	Prof. Dr. Gaube (VWL/Finanzwissenschaft)	32	36	32	37	0	36	0	32
34	Prof. Dr. Thomas (WI/Informationsmanagement) [a.o. WiWi-Zusatzplätze, zusammen mit Proseminar WI]	12	1	1	4	0	5	0	4
Summe			191	169	184	4	185	7	190

(1) Levels of decision-making in Higher Education





Faculty Management

How do cohorts proceed over time?

Study Progress Report

(Reference Date: 11/15/2012 / Number of Total Students enrolled)

Choose the field of study and degree you want to analyze...

Cognitive Science

Weiter >

Bachelor of Science (B.Sc.)

Fertig stellen

Field of study: **Cognitive Science**

Degree: **Bachelor of Science (B.Sc.)**

	SoSe 2009		WS 2009/2010		SoSe 2010		WS 2010/2011		SoSe 2011		WS 2011/2012		SoSe 2012		WS 2012/2013	
	Total	Leave of Absence	Total	Leave of Absence	Total	Leave of Absence	Total	Leave of Absence	Total	Leave of Absence	Total	Leave of Absence	Total	Leave of Absence	Total	Leave of Absence
1. semester (cohort)			88	0			94	0			128	0			114	0
2. semester (cohort)	92				90	0			88	0	1	0	114	1	1	1
3. semester (cohort)			82				80	0			79	0	1	0	111	1
4. semester (cohort)	80	1			80				81	1			76	2		
5. semester (cohort)	1	0	74	20			79	43			80	47			75	47
6. semester (cohort)	53	0	2	0	73	3			79	5			80	9		
Summe	226	1	246	20	243	4	253	43	248	6	288	47	271	12	301	49

- Study Progress Report by field of study and degree
- Displayed for the last 6 semester / aggregated by cohort semester



Faculty Management

Continuation (drop-out) rate based on Study Progress Report

MINT - Student Numbers and Continuation rates by Study Semester 2004-05 to 2012-13 at the University of Osnabrück

Semester	Study Semester											Total	Continuation Rate of cohort 1	Continuation Rate of cohort 2	Continuation Rate of cohort 3	Continuation Rate of cohort 4	Continuation Rate of cohort 5	Continuation Rate of cohort 6	Continuation Rate of cohort 7
	1	2	3	4	5	6	7	8	9	10	>10								
Winter 2004/2005	668	77	692	43	470	30	334	31	210	15	271	2841	100,00%						
Summer 2005	27	608	53	645	40	433	35	291	30	160	202	2524	91,02%						
Winter 2005/2006	787	17	514	44	550	43	370	35	232	31	265	2888	76,95%	100,00%					
Summer 2006	14	674	22	499	49	511	52	320	36	186	218	2581	74,70%	85,64%					
Winter 2006/2007	564	13	531	14	438	40	421	50	264	30	278	2643	65,57%	67,47%	100,00%				
Summer 2007	17	518	16	459	16	365	45	293	28	124	144	2025	54,64%	58,32%	91,84%				
Winter 2007/2008	836	16	472	11	410	28	245	36	212	17	203	2486		52,10%	83,69%	100,00%			
Summer 2008	1	759	19	467	17	376	28	221	38	158	178	2262		47,78%	82,80%	90,79%			
Winter 2008/2009	640	4	670	18	415	16	255	32	177	41	260	2528			73,58%	80,14%	100,00%		
Summer 2009	3	593	7	623	17	381	20	207	15	136	205	2207			67,55%	74,52%	92,66%		
Winter 2009/2010	938	6	491	16	523	13	202	18	142	15	255	2619				62,56%	76,72%	100,00%	
Summer 2010	24	873	9	470	21	475	11	147	12	105	198	2345				56,82%	73,44%	93,07%	
Winter 2010/2011	1036	20	730	15	389	22	205	12	78	13	224	2744					60,78%	77,83%	100,00%
Summer 2011	63	927	19	676	35	335	17	155	8	65	174	2474					52,34%	72,07%	89,48%
Winter 2011/2012	1155	57	755	20	553	25	141	13	96	8	180	3003						58,96%	72,88%
Summer 2012	48	1041	52	714	31	490	13	119	7	72	153	2740						52,24%	68,92%
Winter 2012/2013	1127	40	854	44	541	14	213	4	60	4	177	3078							52,22%

- Build aggregates for fields of study (natural sciences)
- Extend period under observation (last 6 years)

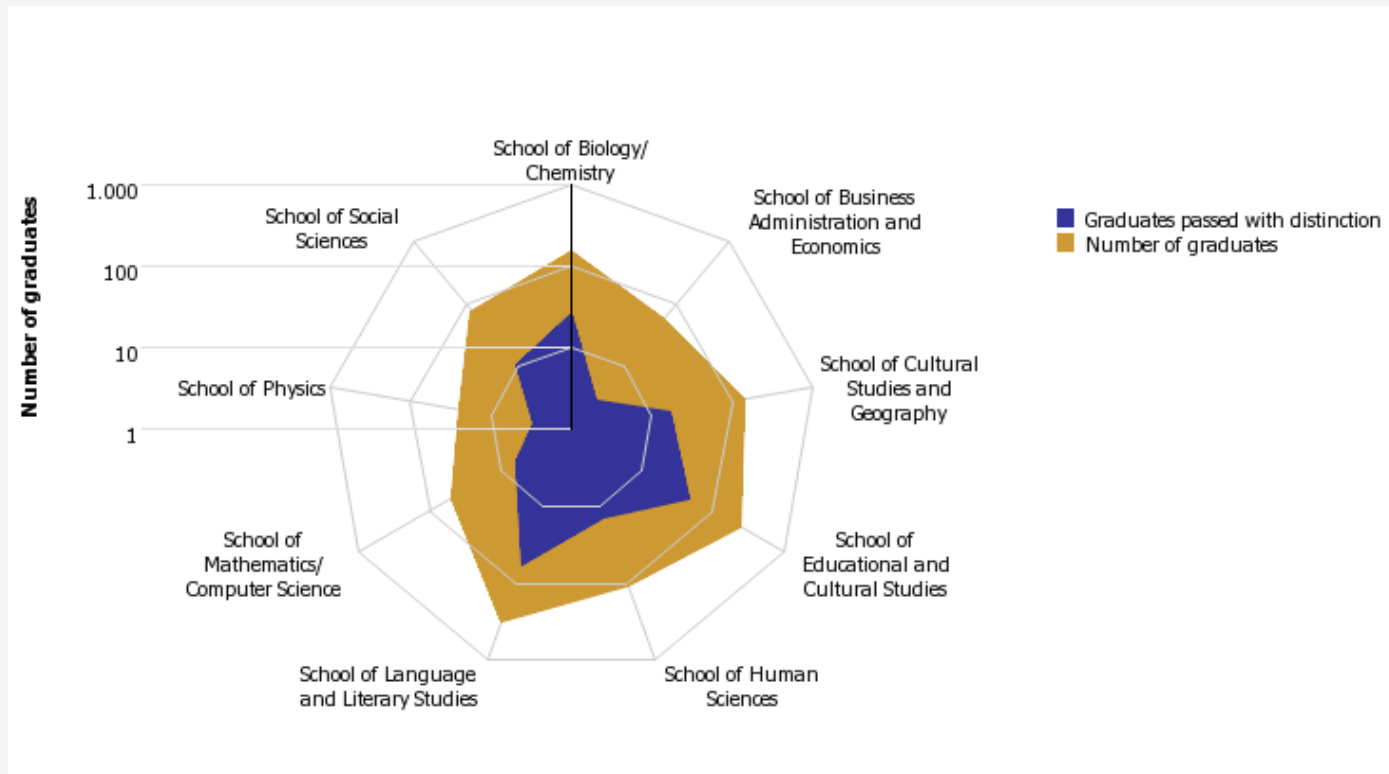
(1) Levels of decision-making in Higher Education





Top Management

How do faculties perform?



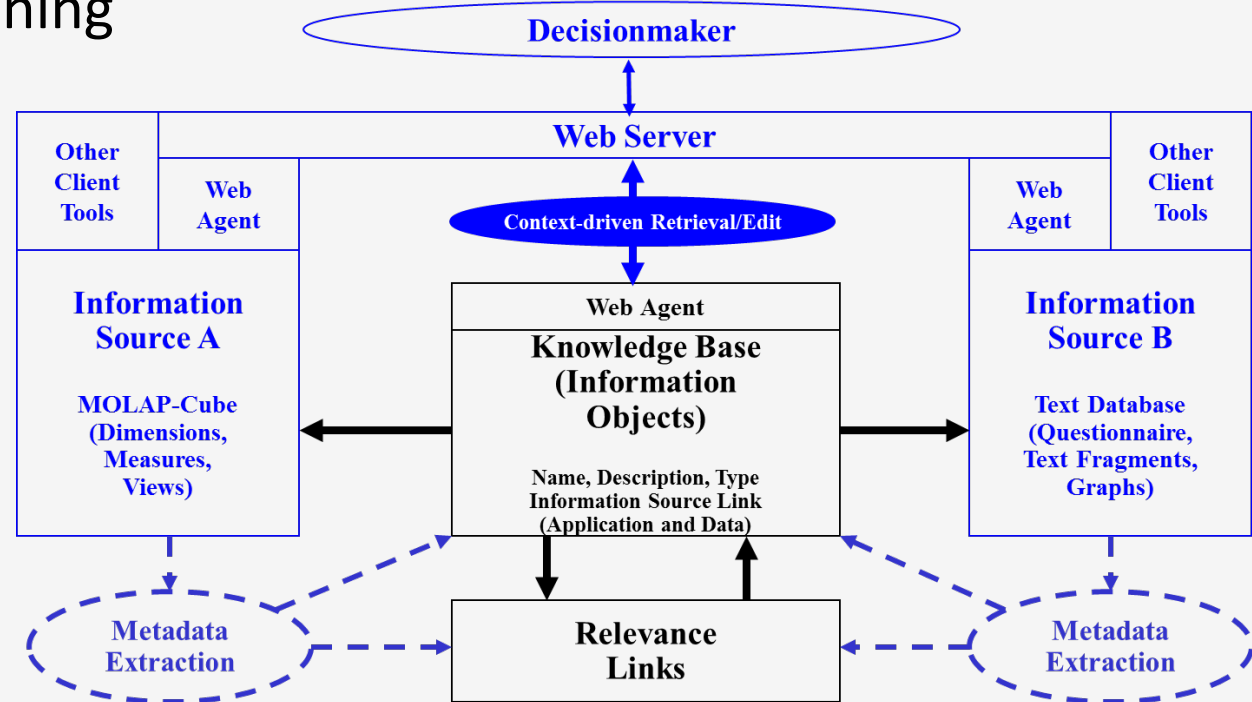
- Faculty success measured by no. and quality of graduates
- Standard reporting (highly aggregated / visualized)

BI-Approach and BI-Targets

- (1) Address all levels of decision-making
- (2) Integrate quantitative and qualitative data**
- (3) From all operational systems
- (4) Provide standard and analytical reporting
- (5) Support operational and strategical decisions

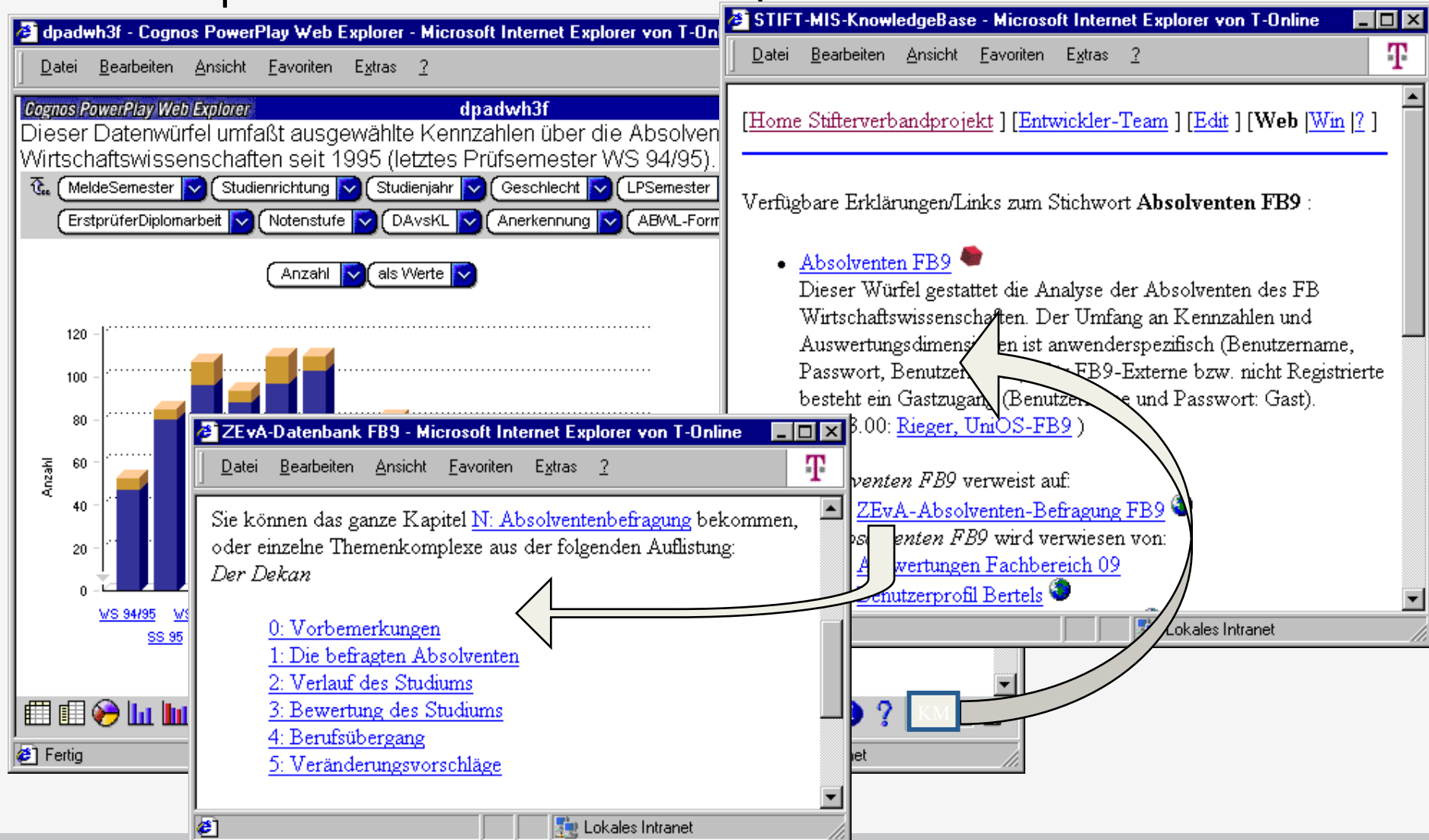
(2) Integrate Qualitative and Quantitative Data

- BI Reports embedded in Wiki system
 - Data source description
 - Report description (facts, figures)
 - Support / Training



(2) Integrate Qualitative and Quantitative Data

Example: InfoCube vs. textual explanation vs. text document



BI-Approach and BI-Targets

- (1) Address all levels of decision-making
- (2) Integrate quantitative and qualitative data
- (3) From all operational systems**
- (4) Provide standard and analytical reporting**
- (5) Support operational and strategical decisions

(3) From all operational systems

Subject Area	Software	Data Source	Responsibility (Administration)	Load Freq
Academic\Student Data	HIS - SOS	Informix/ PostgreSQL	Student Affairs / Admissions Office (Center for Information Management and Virtual Teaching)	daily Semesterly
Application Data	HISinOne APP	PostgreSQL	Student Affairs / Admissions Office (Center for Information Management and Virtual Teaching)	4 x per day (in application phase)
eLearning	Stud.IP	mySQL	Lecturers/Students (Center for Information Management and Virtual Teaching)	daily
Bibliography	PICA	CSV (Flat Files)	University Library	daily monthly (day 1)
Facility Data	conjectFM	Oracle	Facility Management (University Computer Center)	on demand
Financial Data	SAP CO/PSM/FI	CSV	Finance Management (Central Competence Center Hannover)	on demand
Examination Data	HIS – POS	Informix (PostgreSQL)	Examination Management Office (Center for Information Management and Virtual Teaching)	daily semesterly
Capacity Planning	WinKap	Microsoft Access	Institutional Research Office	yearly

Excursion: A few key-figures about Osnabrück DWH size

Category	Measure	Value
Users	Number of full-time academic faculty and staff (headcount)	1,000
	Number of full-time administrative staff (headcount)	700
	Number of enrolled students (headcount)	10,000
	Number of distinct users per day (extremely varying due to peaks by operationally deadlined processes, e.g. application for exams)	100-1,000
Data Warehouse	Number of distinct roles	1450
	Number of distinct userids with explicitly assigned roles	1308
	Average Number of explicitly assigned roles per userid	4,63
	Number of tables in the data warehouse	1275
BI-Frontend	Number of defined queries (data warehouse views)	615
	Size of data warehouse (in GB)	175
	Number of ETL (scheduled) workflows	30
	Number of active Reports (Views)	110 (20)
Community	Number of dashboards	under development
	Number of tickets to the BI-hotline per month	100

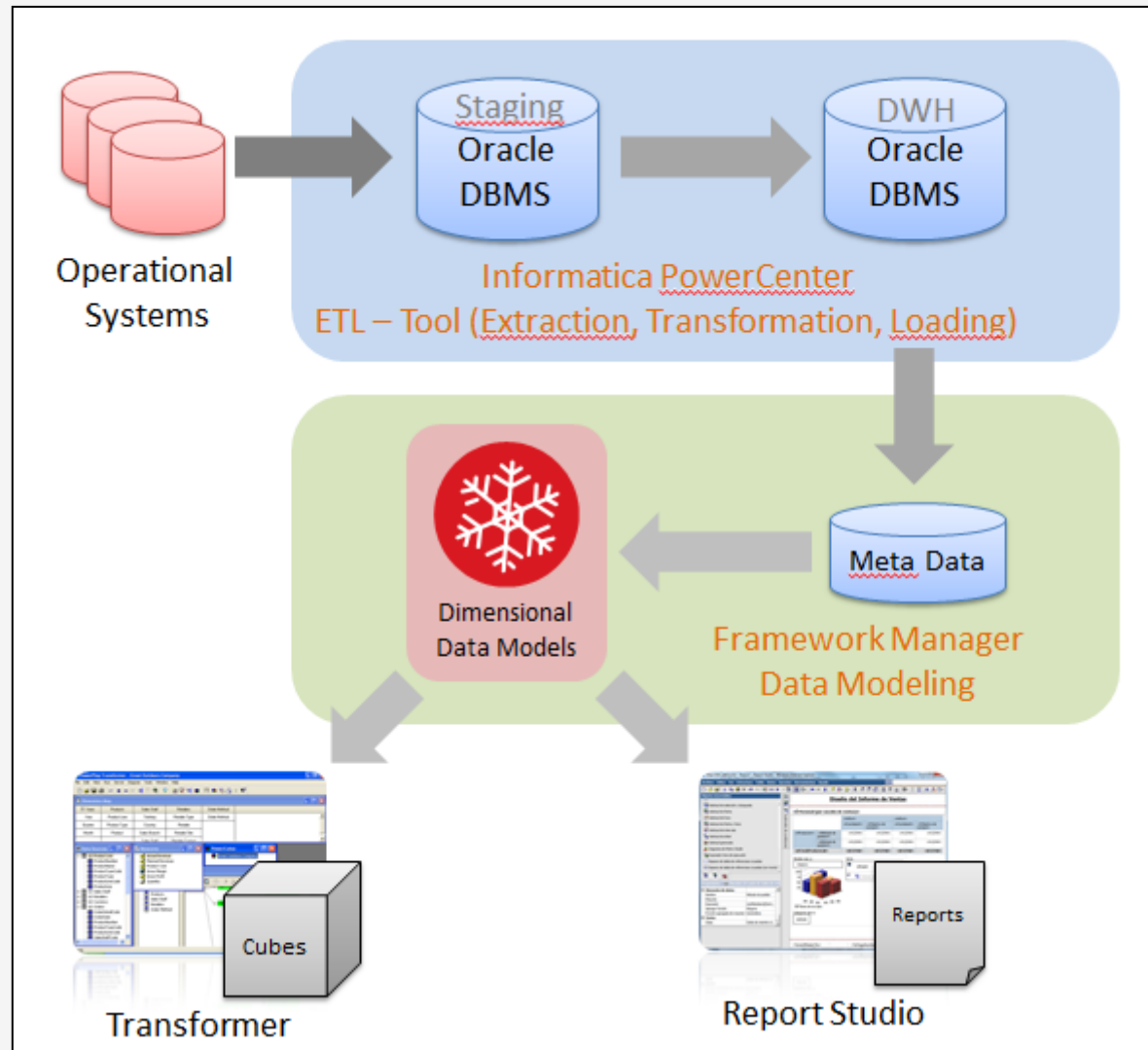
(4) Provide standard and analytical reporting

Reports → Standard Reporting

- Specified, regular analysis demand
- Drill-through for more details
- Provided links to related subjects
- Distribute single report by creating multiple report views (Bursting)

Cubes → Analytical Reporting

- Unspecified, irregular report demand
- Build report on demand for ad-hoc query
- Flexible Data Model (dimensions, facts)
- Export data (xls, pdf)
- Save/distribute views in BI portal



BI-Approach and BI-Targets

- (1) Address all levels of decision-making
- (2) Integrate quantitative and qualitative data
- (3) From all operational systems
- (4) Provide standard and analytical reporting
- (5) Support operational and strategical decisions**

(5) Support operational and strategical decisions

operational

- **VOTE**
preference and performance driven assignment of scarce teaching resources, e.g. theses, seminars, ...
- **TOP**
optimal allocation of exam dates and rooms
- **CBRcourse**
case-based course-planning

strategical

- **sibEUS**
simulation based evaluation of alternative allocation formulas against multiple objectives over time
- **CBRcap**
case-based capacity planning
- **HKS (Benchmarking)**
achievement-oriented resource allocation (HE Key figure system)

TOP - application and preference driven, university-wide allocation of exam dates and rooms with multi-objective, heuristic optimization

TOP-MANAGER: Management-Cockpit für die uniweite TerminOPTimierung
Über dieses Frontend können alle Aktivitäten für das Erzeugen und Administrieren eines uniweiten Termin-Optimierungs-Laufs ausgeführt werden. Die Ausführung aller Aufgaben erfordert die MIS-Berechtigung "TOP".

Lauf auswählen
oder [neuen Lauf erzeugen](#)

Aktiver Lauf

Lauf aktivieren	Opt.Input generieren	ID	LAUF_NAME	LAUF_DESC	PSEM	PTERMIN	FB_LISTE	PDATUM_VON	PDATUM_BIS	LAST_UPDATE	Optimieren	Opt.Ergebnis für manuelle Umplanung laden	Opt./man. Ergebnis publizieren
	generieren	150	FB9WS12/13T03	FB9WS12/13T03	20122	03	FB09,FB10	15.04.2013	15.05.2013	13.03.2013 16:43:11	20.03.2013 19:07:33	20.03.2013 19:08:36	20.03.2013 19:08:36

Terminübernahme aus studIP | Manuelle Umplanung | Ergebnisliste | Studenten-Wunschliste | Vergleich Studenten-Wünsche mit Planung

Editieren Sie hier bei Bedarf die aktivierte Spezifikation und drücken Sie Speichern

Lauf-Nr. **150**

Lauf-Name **FB9WS12/13T03**

Lauf-Beschreibung **FB9WS12/13T03**

Prf.-Semester **20122**

Prf.-Termin **03**

FB-Liste **FB09,FB10**

von Prf.-Datum **15.04.2013**

bis Prf.-Datum **15.05.2013**

last update **13.03.2013 16:43:11**

☒ Speichern ☐ Abbruch ☐ Neuen Lauf erzeugen

[Auswahl aufheben](#)

als CSV (in neuem Browserfenster) anzeigen: [Prüfungen](#) [Räume](#) [Preassignments](#) [Termine](#) [Konfliktmatrix](#) [Teilnehmer](#) [FB](#) [Geb](#) [Präferenzen](#)

Prüfungs-Statistik

FB	WUNSCH_STANDORT	ZUSAMMENLEGEN	PDauer	Anzahl Prüfungen	Anzahl Prüfer	angemeldet
FB09	I	J	60	1	1	86
FB10	I	N	120	5	5	169
			60	1	1	14

Raum-Statistik

STANDORT	GEBNR	Anzahl Räume	Summe Plätze
I	01	4	351
	15	4	205
	22	2	132

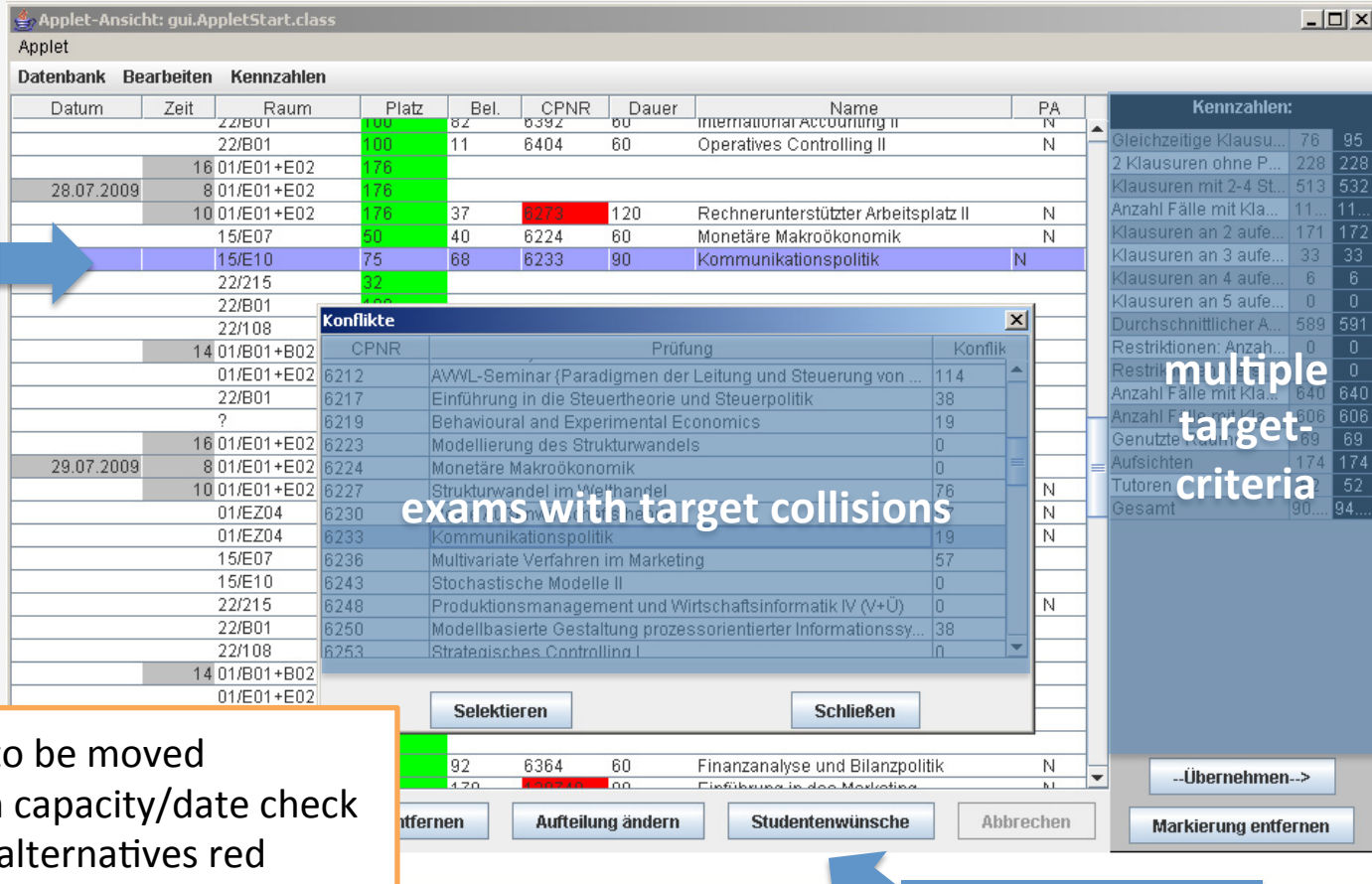
TOP: Wunsch und Wirklichkeit

Version:

PDATUM	PBEGINN	CPNR1	PRUEFUNG	ANGEMELDET	WUNSCHDATUM	STANDARDGRUND	GRUND
15.04.13	14	197.103	Accounting B III (Rechnungslegung)	65	01.04.13	Anderer Grund	Ich würde gerne frühestens ab dem 25. April schreiben, da ich Anfang April andere Klausuren und Seminarvorträge im Fachbereich 6 habe. In Absprache mit Herrn Prof. Dr.-Ing. Rieger habe ich als letztes Datum den 01.04.2013 angegeben, da ich als Termin frühestens ab dem 25. April möchte.
					13.04.13	Auslandsstudium	Anfang Mai wäre möglich! Bitte keinen Termin davor!
					15.04.13	Anderer Grund	Im Anschluss muss die Bearbeitung der...

TOP - scheduling board for manual fine-tuning

Manual Fine-tuning of exams schedule on top of heuristic optimization results



The screenshot shows a software interface for exam scheduling. The main window is titled 'Applet-Ansicht: gui.AppletStart.class' and contains a table with columns: Datum, Zeit, Raum, Platz, Bel., CPNR, Dauer, Name, and PA. A blue arrow points to a row with the date '28.07.2009' and the exam name 'Kommunikationspolitik', with the text 'Exam to be moved' next to it. A 'Konflikte' (Conflicts) dialog box is open, showing a list of exams and their conflict counts. A blue arrow points to the 'Konflikte' dialog with the text 'exams with target collisions'. On the right side, there is a 'Kennzahlen' (Key Figures) panel with various statistics. A blue arrow points to the 'Übernehmen' (Take Over) button with the text 'consider student preferences'. A list of steps is shown in a box on the left.

Exam to be moved

exams with target collisions

multiple target-criteria

consider student preferences

1. select exam to be moved
2. implicit room capacity/date check
3. mark critical alternatives red
4. manual re-schedule
5. show target consequences

TOP – Individual exam scheduling recommendations

Department

Semester of exam /

Exam

	Raum- / Prüfungs-Konflikte	08.00	10.00	14.00	16.00
16.02.09	01/E01+E02	176			
	Marketing	1			
	Steuerliche Gewinnermittlung	8			
	FB02SozGeo			2	
	Sozialgeographie			1	
	22/B01				100
17.02.09	22/108	32			
	22/215	32			
	Operative Erfolgsplanungs- und -kontrollrechnungen (Operatives Controlling II)	3			
	Operatives Controlling II	4			
	FB6AI			5	
	22/B01				100
	Distributionspolitik				4
18.02.09	22/B01	100			100
	Wirtschafts kybernetik				6
19.02.09	15/E10	75			
	Wirtschaftsprüfung II	71			
	22/B01				100
	Produktpolitik				3

possible
room / date
alternatives

exam to be
moved

(5) Support operational and strategical decisions

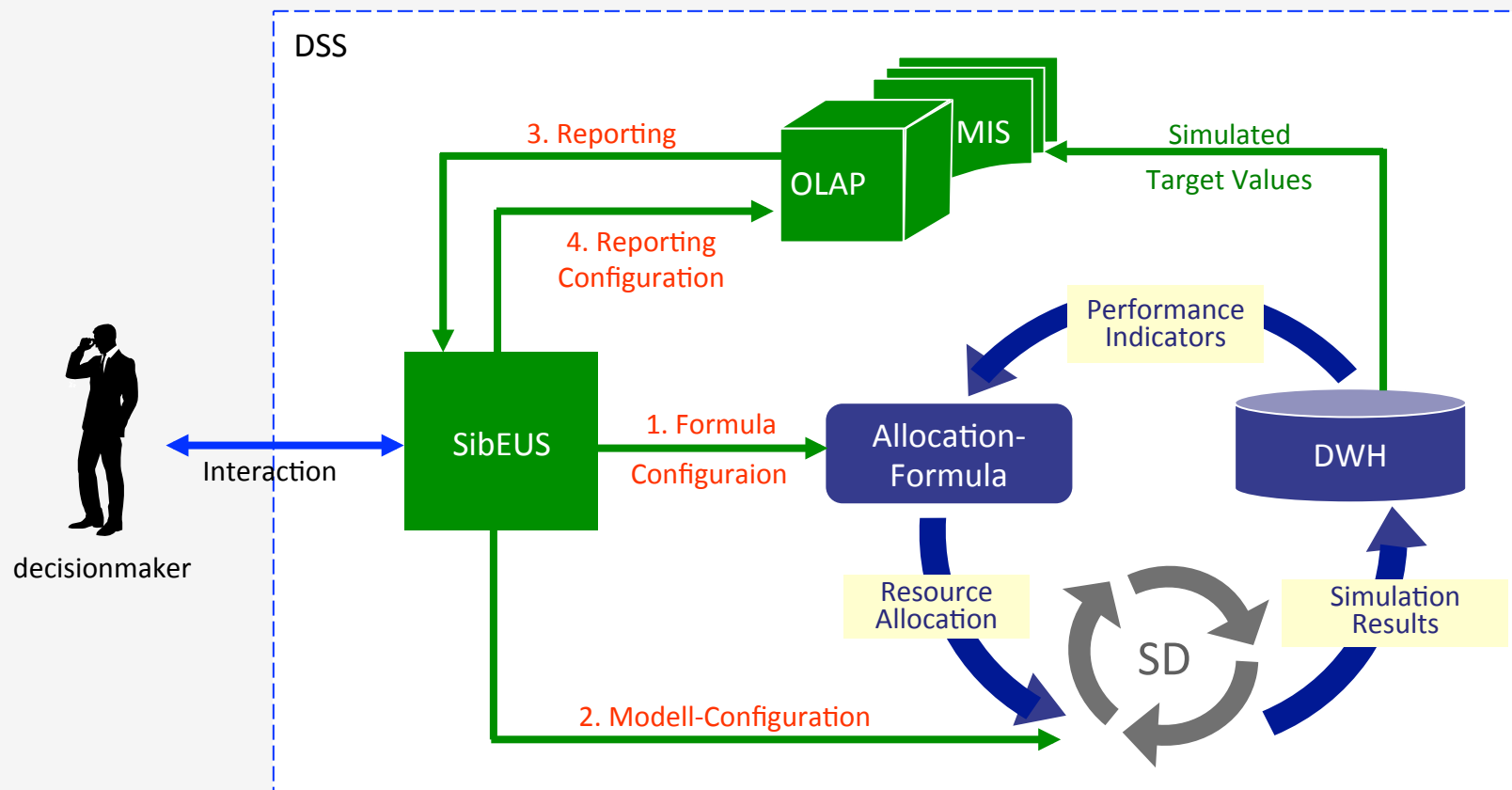
operational

- **VOTE**
preference and
performance driven
assignment of scarce
teaching resources, e.g.
theses, seminars, ...
- **TOP**
optimal allocation of exam
dates and rooms
- **CBRcourse**
case-based course-planning

strategical

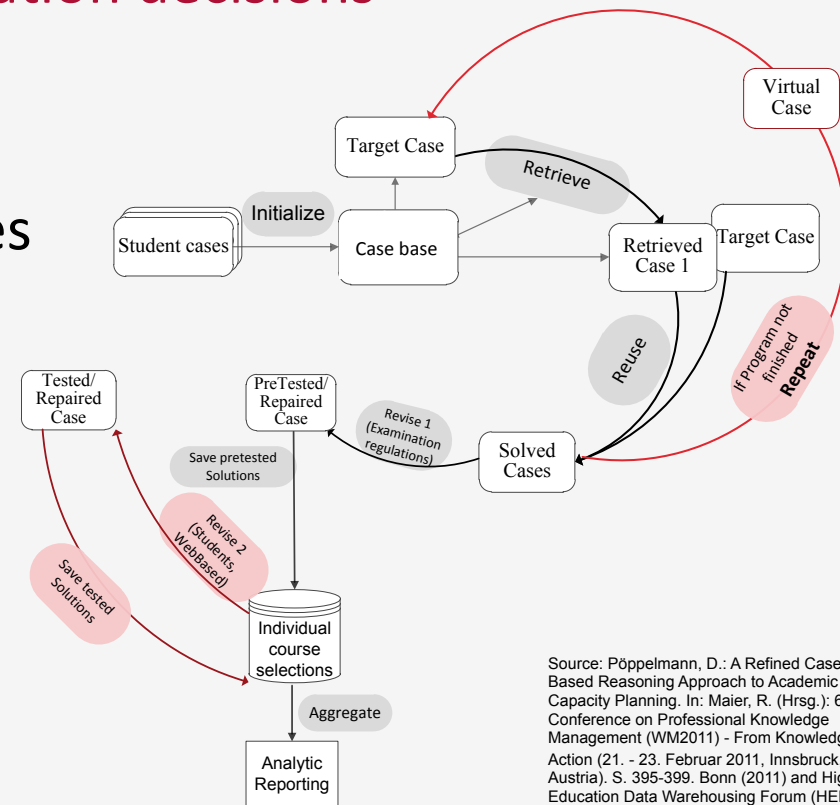
- **sibEUS**
simulation based evaluation of
alternative allocation formulas
against multiple objectives
over time
- **CBRcap**
case-based capacity planning
- **HKS (Benchmarking)**
achievement-oriented
resource allocation
(HE Key figure system)

sibEUS - simulation based evaluation of alternative allocation formula to departments against multiple objectives over time

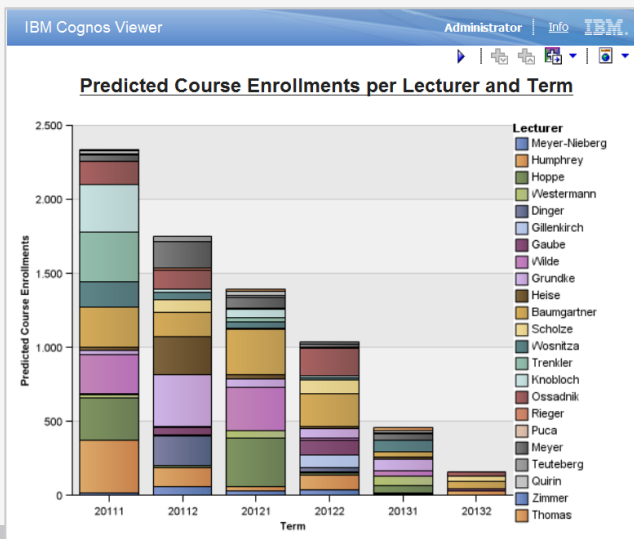


CBRcap – case-based prediction of course enrolment for resource allocation decisions

1. Prediction of individual course enrolment based on course histories of similarly performing students by Case-Based Reasoning (CBR)

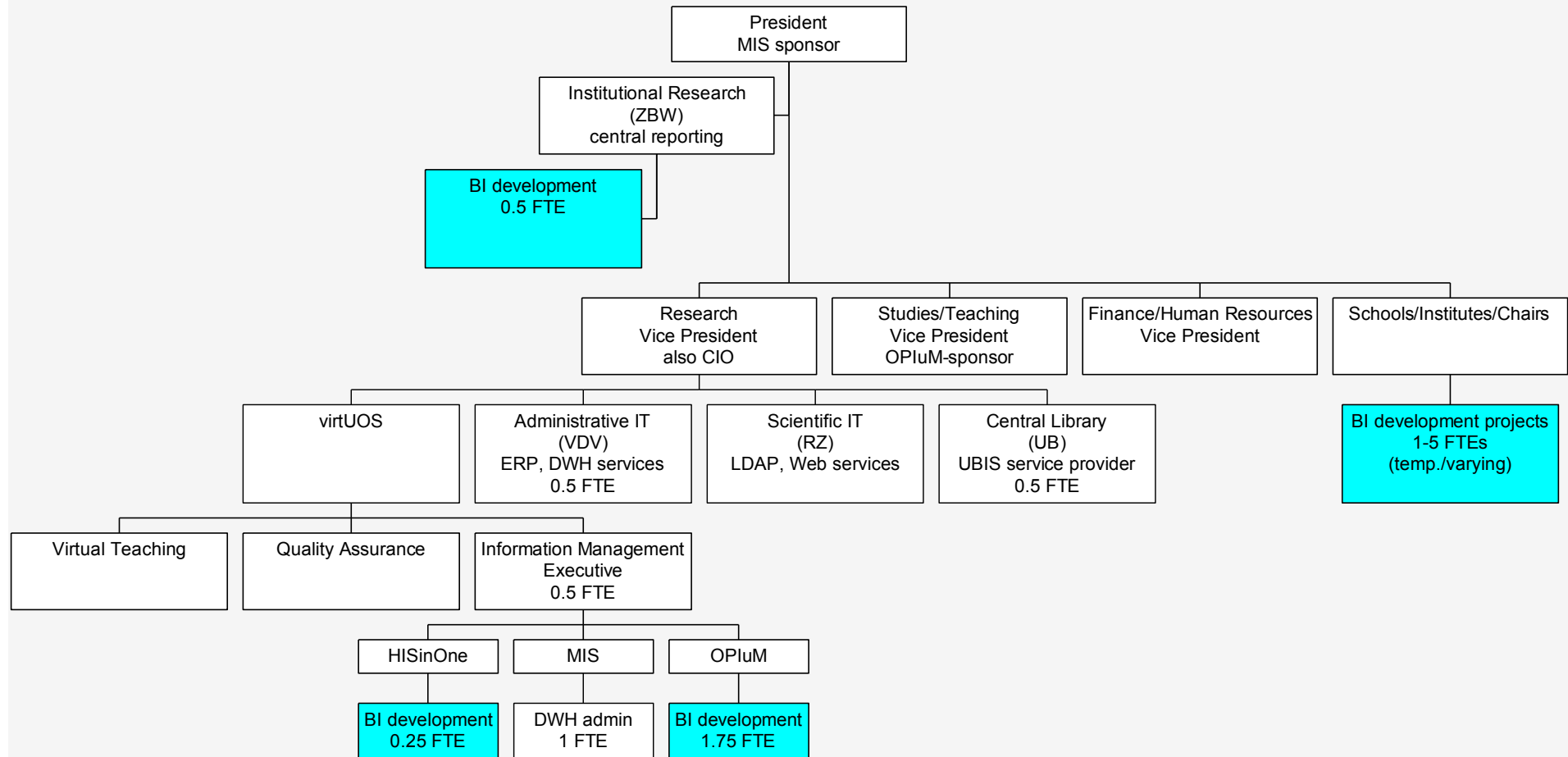


Source: Pöppelmann, D.: A Refined Case-Based Reasoning Approach to Academic Capacity Planning. In: Maier, R. (Hrsg.): 6th Conference on Professional Knowledge Management (WM2011) - From Knowledge to Action (21. - 23. Februar 2011, Innsbruck, Austria), S. 395-399. Bonn (2011) and Higher Education Data Warehousing Forum (HEDW), Austin, Texas, 2012.



2. Aggregation and analyses of these simulated decisions to demand figures for resource allocation

Osnabrück BI Team Specialty/Anomaly



Osnabrück BI Maturity Assessment

RESULT: OVERALL MATURITY LEVEL		
4	CONSOLIDATED	UNBALANCED
Institutional Intelligence is clearly established as a permanent, global, visible, and valued program resulting in an effective internal service. Several data products targeted to different user groups and covering different functional areas have been created and are actively used. The achieved maturity level shows an unbalanced general situation where efforts must be made to improve the weak dimensions (probably by taking advantage of the strong ones).		

			LEVELS				
			ABSENT	INITIAL	EXPANDED	CONSOLIDATED	INSTITUTIONALIZED
DIMENSIONS	I2 TEAM	5	ABSENT	LOCAL	GLOBAL VIRTUAL	GLOBAL FULL TIME	COMPETENCY CENTER
	SCOPE	3	NONE / UNKNOWN	SPECIALIZED	MULTIPLE	GENERALIZED	FULL
	SBU ROLE	3	UNAWARE	AWARE	PARTICIPANTS	SUPPORTING	DATA STEWARDS
	DATA PRODUCTS	4	NONE / UNKNOWN	LIMITED	EXPANDED	MAJORITY	COMPLETE
	USER COVERAGE	5	NONE / UNKNOWN	LIMITED	EXPANDED	MAJORITY	UNIVERSAL
	USERS ENGAGEMENT	3	UNAWARE	AWARE	CUSTOMERS	DRIVERS	CO-OWNERS
	DATA MANAGEMENT	3	UNAWARE	AWARE	MANAGED	SUPPORTED	ENFORCED
	BUSINESS VALUE	4	SCARCE	OPTIONAL	INTERESTING	NECESSARY	CRITICAL
	STRATEGIC SUPPORT	4	FREE FLOATING	LOCALLY EMBEDDED	PROJECT FOOTING	SUSTAINABLE SERVICE	INTERDEPENDENT WITH STRATEGY

Osnabrück BI Initiative Planning (1/2)

BI Maturity Model Dimension	Level	Key areas of focus
BI Team	5-Competency Center	- Strengthen existing pipeline of BI experts (young academics) to compensate continuous losses into private BI market - Convince management to invest more into permanent posts - Push the communication of IT and IR departments by regular meetings
Source Business Units Role	3-Participating	Persistently convince still hesitating units by explicitly private BI projects, i.e. reports for the unit itself, exclusively.
Users Engagement	3-Customers	- Continue actively convincing new user groups - Increase the installation of decentral key users (towards self-service BI)
Data Products	4-Majority	- Expand actually more general Wiki-web-frontends with individual dashboards - Continue development of decision support applications

Osnabrück BI Initiative Planning (2/2)

BI Maturity Model Dimension	Level	Key areas of focus
User Coverage	5-Universal	Implement public dashboards, thus also using BI infrastructure for active public relations work
Scope	4-Multiple	- Integrate SAP-HR and Research data sources and reporting - Increase number of reports based on financial data
Business Value	4-Necessary	Add explicit, visual benefit indicators to selected BI apps, thus actively looking ahead to inevitably again and again upcoming internal criticism and doubts
Strategic Support	4-Sustainable Service	Broaden strategic support base encouraging president level to become hands-on users
Data Management	3-Managed	Migrate existing prototype of active, knowledge management oriented component to deploy actually still widespread metadata to all kinds of users

Critical Success Factors

User acceptance

- Talk to users/decision-makers to learn more about their analysis needs in daily life
- Meet current needs → Create future needs
- Increase trust in data to increase degree of usage
- Easy-to use web interface (training)

High level support

- Resources (staff, budget, time)
- Develop strategy / mission statement
- Support to change processes

Experiences and Recommendations

- Start with open-minded users
- Few, but high-value reports
- Take time to validate data source
- Communicate with data owner
- BI is not a project, but an on-going task
- Be visionary, be patient!
- Start small, think big!



Thank you!
Questions?

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