

Session 5

Monthly bitemporal historicized data management within the new business register application at Statistics Austria

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- Maintenance application (HOST-based) was designed 1995, hence a little outdated
- Inflexible environment
 - Annual historiography
 - Of several maintenance operations only the last would show, others would be overwritten
- Wrong picture of Austrian economy

- JAVA-Application
- Higher flexibility – in all respects
- **A monthly bitemporal historiography**
 - Business time
 - System time
- Two possibilities:
 - Self-programmed solution
 - DB2-10

Why self-programmed solution?

Self-Programmed by Stat. AT	DB2-10
Programming started 2008	Went live in Statistics Austria in 2012
Own ID for each maintenance operation	System historiography table, where invalid values are stored
Business time is one month	Business time is one day
major redesign necessary for using the bitemporal historiography of DB2-10	

- New database entry, valid from January 2016 (until open)

RECHT_ID	KZ_R	HIST_V...	HIST_...	GUELTIG_VON	GUELTIG_BIS	R_F...
183521814	R969D681J	201601	999999	2016-09-02 06:18:08.724	9999-12-31 00:00:00.0	SA

- Entry changed – old value still evident
- New database entry IDs

RECHT_ID	KZ_R	HIST_VON	HIST_...	GUELTIG_VON	↑ GUELTIG_BIS	R_F...
183521814	R969D681J	201601	999999	2016-09-02 06:18:08.724	2016-09-02 06:52:27.425	SA
183521855	R969D681J	201601	201606	2016-09-02 06:52:27.425	9999-12-31 00:00:00.0	SA
183521860	R969D681J	201607	999999	2016-09-02 06:52:27.425	9999-12-31 00:00:00.0	LF

- Visualization in the application

2014	01	02	03	04	05	06	07	08	09	10	11	12
2015	01	02	03	04	05	06	07	08	09	10	11	12
2016	01	02	03	04	05	06	07	08	09	10	11	12

- Actual moment of operation

RECHT_ID	KZ_R	HIST_V...	HIST_...	GUELTIG_VON	GUELTIG_BIS	R_F...
183521814	R969D681J	201601	999999	2016-09-02 06:18:08.724	9999-12-31 00:00:00.0	SA

- If anything is changed → new database entry
- Old entry set to „No longer valid as of“

RECHT_ID	KZ_R	HIST_VON	HIST_...	GUELTIG_VON	↑ GUELTIG_BIS	R_F...
183521814	R969D681J	201601	999999	2016-09-02 06:18:08.724	2016-09-02 06:52:27.425	SA
183521855	R969D681J	201601	201606	2016-09-02 06:52:27.425	9999-12-31 00:00:00.0	SA
183521860	R969D681J	201607	999999	2016-09-02 06:52:27.425	9999-12-31 00:00:00.0	LF

- Same maintenance operation leading to two entries due to bitemporal historiography

- Not monthly covered characteristics
 - Unit is part of certain surveys, number of employees, VAT...
- At time of new entry, old one is set to „invalid“, and ending time-stamp is set

SM_ID	KZ	GUELTIG	GUELTIG_VON	GUELTIG_BIS	SM_ART	SM
63349385	R009X492T	J	2014-08-20 07:15:17.928628	9999-12-31 00:00:00.0	N_AH	AH_IV
45699926	R009X492T	N	2014-03-20 21:03:30.271295	2014-08-20 07:15:17.928628	N_AH	AH_I

Business time AND system time?

- Most characteristics are saved monthly bitemporal
some are only saved with „system time“-stamps
- New characteristics require discussions with all
departments involved

- Higher accuracy of the picture Statistics Austria presents of the Austrian economy
- Queries which show the register at a any moment of time

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