Addendum 29.3.2008

N.B. 1:

NEMO began with 2 months delay,
so all dates in this presentation
were calculated that way.

e.g. month 18 = April 2008

At the moment, however, everyone seems
to calculate the dates in the originally
planned scheme.

e.g. month 18 = February 2008

N.B. 2:

The total person months for UniBielefeld in Annex_1 sum up to 56.5 PMs, the original calculation was probably 24+24+8.5 of two 24month-contracts plus senior researchers.

However, one of the two 24month-contracts is only a ½-job, so a calculation scheme that wants congruent as-is and to-be states needs to reduce the 56.5PMs to 44.5PMs – or (*second alternative, if Annex_1 unchanged*) each worked hour of the ½-job must now be counted twice.

UniBi = NEMO Participant #4

University of Bielefeld,
Department of Physics/
Research Center BiBoS

Philippe Blanchard

Andreas Krüger

Tyll Krüger

+ doctoral research fellow

17.10.2006 Vienna

UniBi NEMO contracted dates for finishing of (M)ilestones and (D)eliverables

M2.1: working paper (month 9 = **July 2007**)
D2.1: research report (month 18 = **April 2008**)
Task 2.2: *Develop random graph models based on intersection graphs*

M2.2: Four workshops, first in **April 2007**
Task 2.3: *Adjust models to empirical data*

M2.4: WorkingPaper (month16= **February 2008**)
D2.3: research report (month 27= **January 2009**)
Task 2.4: *Generalised epidemic processes (GEP) on networks*

M2.5: Working Paper(month 25 = **November 2008**)
D2.4: Research Report(month29 = **March 2009**)
Task 2.6: *Co-evolution of network structures and processes*

D4.2: research report Month 30 = **April 2009**
Task 4.4: *Analyse temporal evolution of networks (empirical networks)*

D4.3: Documentation report (month 30 = **April 2009**)
Task 4.5: *Software tools*

UniBi: Position within NEMO

- Mainly WP2:
  „Structure and dynamics of complex random graph models“
- 42.5 Person-months in WP2
  - = 37% of WP2
  - = 77% of UniBi‘s Person-months is in WP2
- Second largest contribution (6 PM) is in WP4 „Empirical network analysis“ _

Task 2.2: Develop random graph models based on intersection graphs

- Intersection graph: nodes are sets, bonds are drawn if intersection of sets is non-empty
- High clustering coefficient (number of triangles) due to construction process; clique = full graph for all projects (organizations) in set
- Several random intersection **models**
  - Analytical estimation of graph characteristics
  - Relation to quantities in dual graph space (projection)
- evolutionary intersection graphs
  - New set each time step, depending on history
  - Special case: globally tree-like graphs
- `Cameo principle`
  - Creates scale-freeness by attractivity of rare properties
  - extension to intersection graphs

Milestone M2.1: working paper (month 9 = **July 2007**)

Deliverable D2.1: research report (month 18 = **April 2008**)

Task 2.3: Adjust models to empirical data

- Models from Task 2.1 & 2.2
  and empirical data from WP4
- Are our empirical networks and typical samples created by those models similiar?
- Which processes and process parameters create which subsets of the empirical data?
- **Topical** subnetworks: **Clustering,** graph properties

- e.g. importance of memory effects
  on graph formation process

Milestone M2.2: 4 workshops, first in **APRIL 2007**

Task 2.4: Generalised epidemic processes (GEP) on networks

- GEP extends classical epidemics (with e.g. linear contagion probability)
- … to topology-dependent and mean-field-influenced processes with non-linear transition functions
  - e.g. I do not react to news mentioned **once** or **twice**, but as soon as **three** neighbours talk about it, I can be infected.
  - GEP simulation:
    - Existence of an initial-infection-ratio critical threshold
    - Reverse effect of clustering
    - Resonance of local and mean-field processes
    - Degree-degree correlation dependence of initial threshold

MilestoneM2.4: WorkingPaper (month16= **Feb 2008**)

Deliverable D2.3: research report (month 27= **Jan 2009**)

Task 2.6: Co-evolution of network structures and processes

- Network **structure** becomes endogeneous
- Link weights evolve over time due to good/bad interactions with neighbours
- New collaborations depend on weights
- Which structures are efficient for knowledge creation, transfer and distribution

MilestoneM2.5: WorkingPaper(month 25 = **Nov 2008**)

DeliverableD2.4: ResrchReport(mnth29 = **March2009**)

WP4: Contribution of UniBi

- 6 Person-months in WP4
  - = 17% of WP4 (total is only 35.5 PM)
  - = 11% of UniBi‘s Person-months is in WP4, 77% in WP2 _

Task **4**.4: Analyse temporal evolution of networks (empirical networks)

- Longitudinal investigation
- Temporal evolution of network topology
- Local and global properties over time
- Attachment rules
- Shift of thematic, geographical priorities, etc.

Deliverable D4.2: research report
(month 30 = **April 2009**)

Task **4**.5: Software tools

- Python
- Michael Barber and Andreas Krueger share libraries

Deliverable D4.3: Documentation report (month 30 = **April 2009**)