



Coordination of Biological and Chemical IT Research Activities

FP7-ICT-2009.8.9 Coordinating Communities, Plans and Actions in FET Proactive Initiatives
Project No. 270371

www.cobra-project.eu

Annual Project Activity Report – Year 1

WP 5 D5.1

Version of March 23 2012



<i>Workpackage</i>	5
<i>Due Date</i>	23/3/12
<i>Date of Release</i>	23/3/12
<i>Deliverable Type</i>	R
<i>Deliverable Number</i>	5.1
<i>Pages</i>	2+3+6+7=18
<i>Leading Unit</i>	MMU
<i>Leading Author</i>	Martyn Amos
<i>Contributing Authors</i>	Margaret Taylor, Steen Rasmussen, John McCaskill, Peter Dittrich
<i>Contributing Units</i>	SDK, RUB, FSUJ
<i>Contact Mail</i>	M.Amos@mmu.ac.uk

COBRA is a Future and Emerging Technologies Proactive Initiative funded by the European Commission under FP7.

This document reflects only the views of the author(s) and the European Commission is not liable for any use that may be made of the information contained therein.



FRONT PAGE

PROJECT PERIODIC REPORT

Grant Agreement number: 270371

Project acronym: COBRA

Project title: Coordination of Biological and Chemical IT Research Activities

Funding Scheme: FP-INFSO-FET

Date of latest version of Annex I against which the assessment will be made: 17/9/10

Periodic report: 1st ☒ 2nd ☐ 3rd ☐ 4th ☐

Period covered: from 1/12/10 to 30/11/11

Name, title and organization of the scientific representative of the project's coordinator:

Dr Martyn Amos
Reader in Novel Computation
Manchester Metropolitan University, UK

Tel: +44 (0)161 247 1534

Fax: +44 (0)161 247 6840

E-mail: M.Amos@mmu.ac.uk

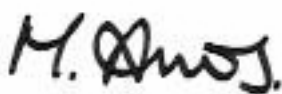
Project website address: <http://www.cobra-project.eu>

Declaration by the scientific representative of the project coordinator

I, as scientific representative of the coordinator of this project and in line with the obligations as stated in Article II.2.3 of the Grant Agreement declare that:

- The attached periodic report represents an accurate description of the work carried out in this project for this reporting period;
- The project (tick as appropriate):
 - ☐ has fully achieved its objectives and technical goals for the period;
 - ☒ has achieved most of its objectives and technical goals for the period with relatively minor deviations.
 - ☐ has failed to achieve critical objectives and/or is not at all on schedule.
- The public website, if applicable
 - ☐ is up to date
 - ☒ is not up to date (we have until 23/4/12 to complete this task)
- To my best knowledge, the financial statements which are being submitted as part of this report are in line with the actual work carried out and are consistent with the report on the resources used for the project (section 3.4) and if applicable with the certificate on financial statement.
- All beneficiaries, in particular non-profit public bodies, secondary and higher education establishments, research organisations and SMEs, have declared to have verified their legal status. Any changes have been reported under section 3.2.3 (Project Management) in accordance with Article II.3.f of the Grant Agreement.

Name of scientific representative of the Coordinator: Dr Martyn Amos



Date: 23/3/2011

3.1 Publishable summary

3.1.1 Project context and objectives

COBRA is a coordination action to help organize the international CHEM-IT community towards the next major science and technology revolution, involving the integration of information processing with production during deployment. The industrial revolution mechanized production with factories, and the information revolution mechanized information processing with computers. The next large-scale technological revolution most likely involves their integration and its decentralization, as found so far only in living systems and it is now clear that significant scientific and technical progress towards this integration is imminent. The EC-sponsored CHEM-IT projects are spearheading the development and exploration of the first simple systems integrating production and information processing. This is done at the nano-bio-info interface, involving cellular engineering, protocells, artificial neurons and programmable information chemistry. At the centre of this work is a desire to create ICT-based systems with living and intelligent desirable properties that current technologies lack (such as robustness, autonomy, self-repair, adaptation, learning and local intelligence, as well as self-replication and evolution). The potential long-term impact of this emerging enabling technology will be considerable, as even minor progress on making technology more life-like and intelligent can improve processes in all sectors of society. CHEM-IT addresses issues of sustainability in production and deployment, and the information explosion of ubiquitous nanoscale systems. The COBRA project, centered on the coordination of biological and chemical IT research activities, will engage the European research community to construct the first roadmap for how best to develop ICT-based integrated information processing and production technology.

Our specific objectives are as follows:

- To formulate, develop and maintain a coherent European vision and strategy for bio/chem IT.
- To identify areas of critical importance in bio/chem IT, and to help focus research in these areas.
- To facilitate improvement in the quality, profile and applicability of European research in bio/chem IT.
- To provide a high-profile, high-quality framework for the discussion and resolution of current issues in bio/chem IT.
- To facilitate industrial involvement with bio/chem IT.
- To encourage and support the involvement of students and early-career researchers, and to promote high-quality teaching of topics in bio/chem IT.

3.1.2 Work performed, and main results

WP1: Stakeholder Consultation

We have constructed an initial database of stakeholders, developed survey questions, and established the computational infrastructure for automatic processing of responses (see deliverable **D1.1**).

WP2: Strategy and Vision

This work package will not formally begin until M16.

WP3: Community Building

We have held two events; a kick-off event at the beginning of the project, and the first annual conference, held as a satellite workshop at the 2011 *European Conference on Artificial Life* (see deliverable **D3.1**). This has led to a special issue of the journal *BioSystems*, which is currently in preparation (although the papers are already available online; see deliverable **D4.2**).

WP4: Dissemination and Outreach

The project website is in place at <http://www.cobra-project.eu>. We organized an outreach session at *fet¹¹: The European Future Technologies Conference and Exhibition*, and published a paper in the formal proceedings (see deliverable **D4.2**). The dissemination and outreach strategy is now in place (see report on task **T4.2**).

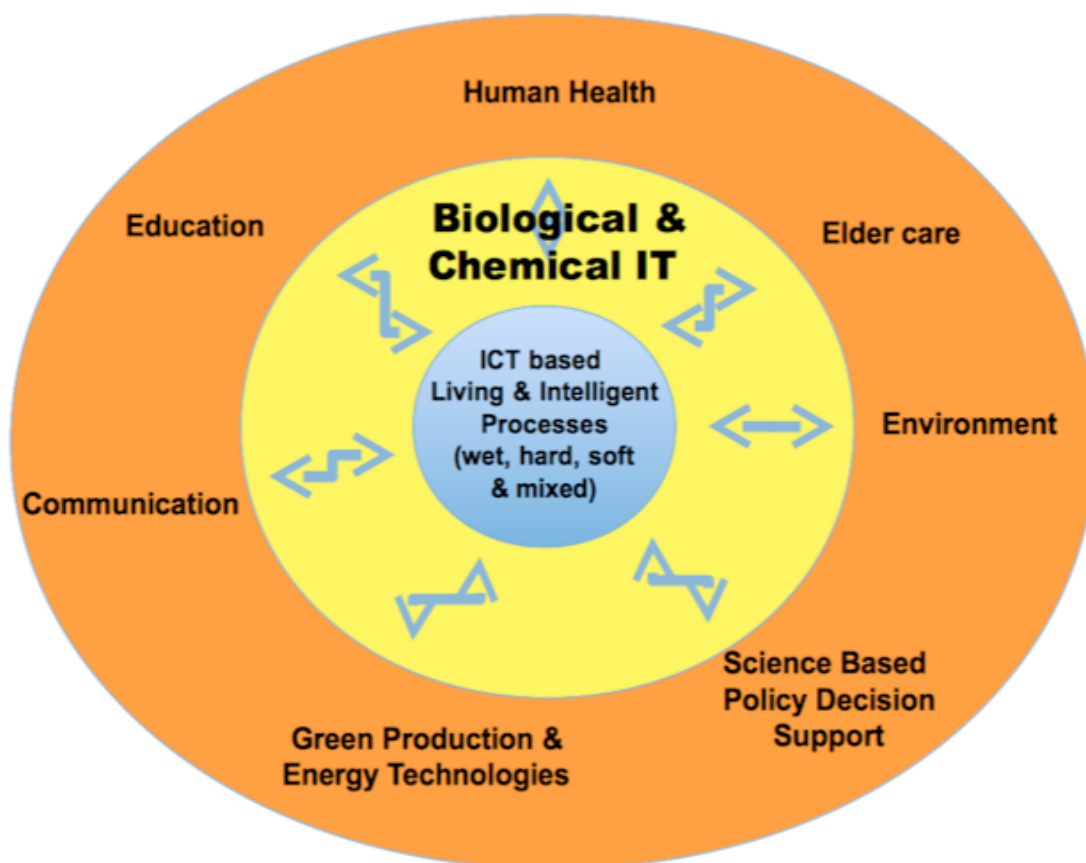
3.1.3 Expected final results, potential impact and use

Being a coordination action, COBRA is primarily directed towards networking, coordination and dissemination. This proposal squarely addresses the "alternative paths to ICT components and systems" transformation specified in the work programme. The added value of the proposed activity lies in the potential long-term impact of bringing together many different scientific disciplines, focussing attention on strategy and developing a coordinated and sustainable community in biological and chemical IT.

Additionally, the expected impacts for Objective ICT-2009 8.3 Proactive 3 Bio-chemistry-based Information Technology (CHEM-IT) (in which the all of the core groups address through their associated projects) are:

1. The development of ICT systems and devices that utilise interactions between components to assemble complex functional information processing materials.
2. Enable a new generating of systems capable of interfacing with conventional IT systems that are self-replicating, self-repairing and/or capable of rapid adaptation/evolution as well as flexible reconfiguration in response to changing conditions.

We depict, in the figure below, some of the potential areas in which biological/chemical IT may have a significant impact (we show only a small subset in the outer ring). We can see from this figure how biological and chemical IT connects basic science with societal needs in a very natural fashion. By harnessing combinations of living and intelligent processes with other, more traditional technological substrates, we obtain a large number of possible devices and systems which may then be applied to a raft of significant problems, such as green energy, environmental monitoring and remediation, health, elder care and materials. The potential long term impacts on European quality of life and industry cannot be overstated.



3.1.4 Project website

This may be found at <http://www.cobra-project.eu>. This is currently being updated to reflect the Dissemination and Outreach strategy, and will be back online no later than 23/4/12.

3.2 Project objectives, work progress and achievements, project management

3.2.1 Project objectives for the period

3.2.1.1 WP1: Stakeholder Consultation

(1) To obtain a documented overall picture of current European activity in bio/chem IT. (2) To engage the scientific community, industry and other stakeholders with the development of the roadmap document. (3) To provide foundational and visionary input to the development of the roadmap.

3.2.1.2 WP2: Strategy and Vision

Not applicable, since this WP is not due to begin until M16.

3.2.1.3 WP3: Community Building

(1) To provide a platform for discussion, and exchange of ideas and research personnel. (2) To integrate students and early-career researchers with the bio/chem IT community. (3) To respond dynamically to fast-changing developments in the field. (4) To provide grass-roots technical input to the roadmap and project strategy. (5) To build links between the bio/chem IT community and other related areas. (6) To foster the dynamic development of communities centred on specific areas of strategic importance.

3.2.1.4 WP4: Dissemination and Outreach

(1) To establish an infrastructure for the effective and timely development, management and dissemination of project outputs, and to ensure these occur. (2) To promote the national and international profile of the project, and of bio/chem IT in general. (3) To establish and maintain links with other related projects and activities, and to handle external liaison.

3.2.1.5 WP5: Management

(1) To manage and control the project resources (personnel, finance, equipment, etc.) (2) To monitor and control the financial and administrative procedures of the project. (3) To direct and coordinate communication between the Consortium, external contacts and the European Commission. (4) To monitor consistency between the project results and the strategic objectives of the partners. (5) To ensure quality assurance procedures are established and observed.

3.2.2 Work progress and achievements during the period

3.2.2.1: WP1: Stakeholder Consultation

3.2.2.1.1 Summary of progress towards objectives and details for each task

Work during this period has focussed on objective (1): obtaining a documented overall picture of current European activity in bio/chem IT.

In terms of **Task 1.1: Creation of Online Expertise database and collective intelligence web environment**, an extensive stakeholder contact list has been compiled from the COBRA consortium members networks, as well as from a variety of mailing lists. Survey questions have been developed and the on-line website, server and computational back ends and front ends have been established for stakeholder input. Automated computational language parsing of context-defined stakeholder input text has been developed, installed and alpha tested. Automated graphing of extracted meanings has been developed and tested. These graphs are immediately available for the individual stakeholder, so that she/he can see the collective intelligence-derived "lay of the land" of the whole community, as well as how she/he fits into the broader community perspective. This task is therefore completed, with the delivery of **D1.1** and **D1.3**.

Task 1.2: Vision discovery has been completed, with the delivery of a draft vision document (**D1.2**). This describes the scope of bio/chem IT, outlines challenges and opportunities, suggests (using case studies) different approaches to its realisation, and concludes with a description of one possible motivating "grand challenge" for the field.

Task 1.3: Community audit (due M15) is currently ongoing.

3.2.2.1.2 Highlight clearly significant results

We have developed an operational, automated, online system for extracting the collective intelligence of very large stakeholder groups through an open question (free text) input.

Summary of the technical details:

Based on the existing SurveyExact online system, we ask our stakeholders to provide short, but open, free text input about a variety of questions pertaining to their perspectives on the future of ChemBio-ICT. The input text strings are sent via a notification email to a Mail Server (notification email with extracted array of text answers). The Mail Server forwards the array of text to our internal FLinT wiki machine, where the text processing occurs. Here we use the Natural Language Tool Kit ([NLTK.org](http://nltk.org)) to produce appropriate output in form of critical words/concepts, e.g., the result of a parsing of the following sentence: "I believe 3D printer technology will be increasingly important in the development of the ChemBio-ICT area" yields "3D printer technology". The output of the NLTK processing is then added to the existing set of extracted meanings (e.g., the "3D printing technology" counter is increased by one). These data are then piped to a set of graphing tools that depicts the *collective perspective* on ChemBio-ICT for the stakeholder group. These graphs are copied via FTP to the website <http://chembio-it.eu>, where they can be viewed by the stakeholder that has just provided their input. Together, these graphs provide a picture of the community's perspectives on the emerging field of ChemBio-ICT.

Please see deliverables **D1.1** and **D1.3** for details of the expertise database and collective intelligence tool.

3.2.2.1.3 *If applicable, explain the reasons for deviations from the original work plan and their impact on other tasks as well as on available resources and planning.*

No significant deviations.

3.2.2.1.4 *If applicable, explain the reasons for failing to achieve critical objectives and/or not being on schedule and explain the impact on other tasks as well as on available resources and planning (the explanations should be coherent with the declaration by the project coordinator)*

Not applicable.

3.2.2.1.5 A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary from the original work plan

The work has been directed by professor Steen Rasmussen and jointly executed by assistant professor Mark Dorr, under graduate Sif Schmidt-Petersen and prof. Steen Rasmussen. There are no major deviations from the planned person-months.

3.2.2.1.6 If applicable, propose corrective actions.

Not applicable.

3.2.2.2: WP2: Strategy and Vision

This WP is not due to begin until M16. However, relevant recent activities have included:

- Further pursuit and coordination of the SPLiT initiative formulated in Dec 2010 (ECLT, RUB, SDU).
- Coordination and formulation of new project communities linking electronic chemical cells and DNA processing with autonomous microchips.
- Organization of tables linking various objectives of chem/bio IT with metrics for progress.
- Strategic planning for the area of Evolving Living Technology, including contributions to a FET consultation session.
- Initial draft of an overall vision document, including scenarios derived from current projects, and an overarching vision.
- Ongoing development of strategy and vision in association with the two centers ISSP and ECLT.

3.2.2.3: WP3: Community Building

3.2.2.3.1 Summary of progress towards objectives and details for each task

Work during this period has focussed mainly on objectives 1, 2 and 5 (that is, creating a discussion platform, integrating students and early-career researchers, and developing links with other fields).

The formal project activities began with **Task 3.1: Kick-off event**, which was held in Manchester on January 20-21 2011. This allowed COBRA members to meet (sometimes for the first time), explain their specific projects, and integrate with the activities of the coordination action. This task is therefore completed.

Task 3.2 maps on to deliverable **D3.1 Conference** (M12); the annual COBRA conference. This was held slightly earlier than planned, as a satellite workshop to the *European Conference on Artificial Life (ECAL)*, in Paris, and took place on August 8 2011. This was well-attended by both students and early-career researchers, as well as by ECAL participants from outside the project (in this way, the meeting succeeded in helping to develop links with other fields). Please see deliverable **D3.1** for a full report. This task is therefore completed.

Preparation for **Task 3.4: Summer school** (M20) is ongoing.

Tasks 3.3: Exchange visits and **3.5: Technical interest groups** (running throughout) are ongoing. We are currently using the preliminary analysis of the expertise database, combined with personal experience, in order to identify appropriate topics for the interest groups (and people to lead them). The first exchange visits will happen in early summer 2012.

3.2.2.3.2 Highlight clearly significant results

The kick-off event was attended by representatives of the four core projects, and included overview talks, technical presentations, and general strategic and scientific discussion sessions.



Photographs of COBRA kick-off event. More at <http://www.cobra-project.eu/news.html>.

Titled *BioChemIT2011: First COBRA Workshop on Biological and Chemical Information Technologies*, the ECAL meeting featured two invited lectures, ten contributed talks, and an open discussion session. Around thirty people attended the whole session (See deliverable **D3.1** for a list).

3.2.2.3.3 If applicable, explain the reasons for deviations from the original work plan and their impact on other tasks as well as on available resources and planning.

No significant deviations; although **D3.1 Conference** was scheduled to take place in M12, it actually took place in M9, in order to take advantage of the opportunity offered by the *European Conference on Artificial Life* (in the proposal we explicitly mentioned this conference as one possible “parent” conference).

3.2.2.3.4 If applicable, explain the reasons for failing to achieve critical objectives and/or not being on schedule and explain the impact on other tasks as well as on available resources and planning (the explanations should be coherent with the declaration by the project coordinator)

Not applicable.

3.2.2.3.5 A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary from the original work plan

See 3.2.2.5.5 (departure of project administrator). As such, the MMU PMs for this WP are lower than expected. The coordinator took over the administrator’s main duties, including the organization of the conference. The main effort for FSUJ and UNIVE will come during the organization of the summer school, although FSUJ has already spent some time in editing the special issue arising from the conference.

3.2.2.3.6 If applicable, propose corrective actions.

None required.

3.2.2.4: WP4: Dissemination and Outreach

3.2.2.4.1 Summary of progress towards objectives and details for each task

The main objectives addressed were the establishment of dissemination infrastructure, and promotion of the project.

The first task undertaken was **Task 4.1** (mapping on to **D4.1: Project website**). This is now in place, although it will be updated (as per the suggestions from the reviewers) by 23/4/12, so we list it as ongoing.

Task 4.2: Dissemination and Outreach strategy is completed. This describes the structure and content of the website, gives an introduction to **T4.3: Edited collection** (M36), and establishes our approach to external liaison/project promotion and outreach activities.

Task 4.4: External liaison is ongoing, including participation in two policy events. We have been actively working on **T4.5: Project promotion**, including attendance at European information events.

3.2.2.1.2 Highlight clearly significant results

The first deliverable for this WP was **D4.1: Project website** (M3), which is now online at <http://www.cobra-project.eu>.

The project also has a Twitter account (@cobra_project); this has not been used extensively so far, but we expect activity to grow once the project develops, now that we have a full-time administrator back in post.

In support of **Task 4.4: External liaison**, John McCaskill attended the following two events on behalf of COBRA:

1. Frankfurter Sonderkolloquium der Dechema 'Künstliches Leben'. Presentation '*Leben zwischen Elektronik und Chemie*', 27 January 2011, Frankfurt, Germany (general audience and policy makers).
2. Participation in and session chairing at the 49th Meeting of the Ev. Akademie Rheinland '*Das Rätsel des Lebens im Spiegel der Wissenschaften*', 09-10 December 2011, Bonn, Germany (general audience and policy makers).

Task 4.5: Project promotion has taken up the majority of effort expended on this work package; in addition to the standard website and other social media activities, we organized a session at *fet¹¹: The European Future Technologies Conference and Exhibition*, held in Budapest on May 4-6 2011.



The session was titled *Biological and Chemical Information Technology: Bottom-up chemistry and synthetic biology*, and took place on May 5 2011.

The session website is at <http://www.cobra-project.eu/fet11.html>.

Our plenary speaker was **Dr Farren Isaacs**, Biological and Biomedical Sciences, Yale University, who spoke about his recent work (*Science* **333**(6040):348-53) on *in vivo* manipulation of chromosomes to enable genome-wide codon replacement.

Each COBRA constituent project gave a short overview of its activities, before Dr Amos presented a brief talk on the coordination action and invited *fet¹¹* participants to become involved.

We contributed a paper to the official proceedings, which appeared as

- Amos, M., Dittrich, P., McCaskill, J. & Rasmussen, S. (2011) Biological and chemical information technologies. *Procedia Computer Science* **7**:56-60, [doi:10.1016/j.procs.2011.12.019](https://doi.org/10.1016/j.procs.2011.12.019).

3.2.2.4.3 If applicable, explain the reasons for deviations from the original work plan and their impact on other tasks as well as on available resources and planning.

No significant deviations.

3.2.2.4.4 If applicable, explain the reasons for failing to achieve critical objectives and/or not being on schedule and explain the impact on other tasks as well as on available resources and planning (the explanations should be coherent with the declaration by the project coordinator)

Not applicable.

3.2.2.4.5 A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary from the original work plan

See 3.2.2.5.5 (departure of project administrator). As such, the MMU PMs for this WP are lower than expected. The coordinator took over the administrator's main duties, including the majority of the organization of the *fet¹¹* workshop.

3.2.2.4.6 If applicable, propose corrective actions.

None required.

3.2.3 Project management during the period

3.2.3.1 Consortium management tasks and achievements

The following tasks were undertaken, as specified in Articles II.2.3 and II.16.5 of the Grant Agreement:

(a) Administration of European Union financial contribution.

We have ensured that the financial contribution has been correctly allocated to the previously agreed activities.

(b) Records and financial accounts.

Full records and accounts have been kept, and are available for inspection.

(c) Notification of transfer dates.

The following payments were made on July 13 2011 (amounts converted from UKP, with an exchange rate of 0.88): €31,350 to SDU; €39,160 to FSUJ; €44,063 to RUB; €16,572 to UNIVE.

(d) Financial reports.

The submitted reports are consistent with the project tasks.

(e) Compliance.

All beneficiaries have complied with their obligations.

3.2.3.2 Problems/solutions

The main problem was the departure of the project administrator from MMU. She was appointed at the start of the project, but left to pursue a career in teaching on April 14 2011 (M5). A new administrator has been appointed from M15. The long delay in appointing a replacement was due to both internal re-structuring of administration at MMU and a lack of suitable candidates in the initial appointment round (we went to a second round before appointing).

The departure of the administrator, combined with a number of requested changes, has also led to a delay in the signing of the Consortium Agreement. This is now in hand; two partners have signed, and the other two are processing the CA through their local administrations.

The reviewers identified a lack of “proactive management” as one major fault of the project in the first year. This has now been addressed by (a) having an administrator in place, and (b) a review of local processes and workflows for monitoring and execution of project tasks, such that tasks and deliverables become the pre-eminent driver.

3.2.3.3 Consortium changes, if any

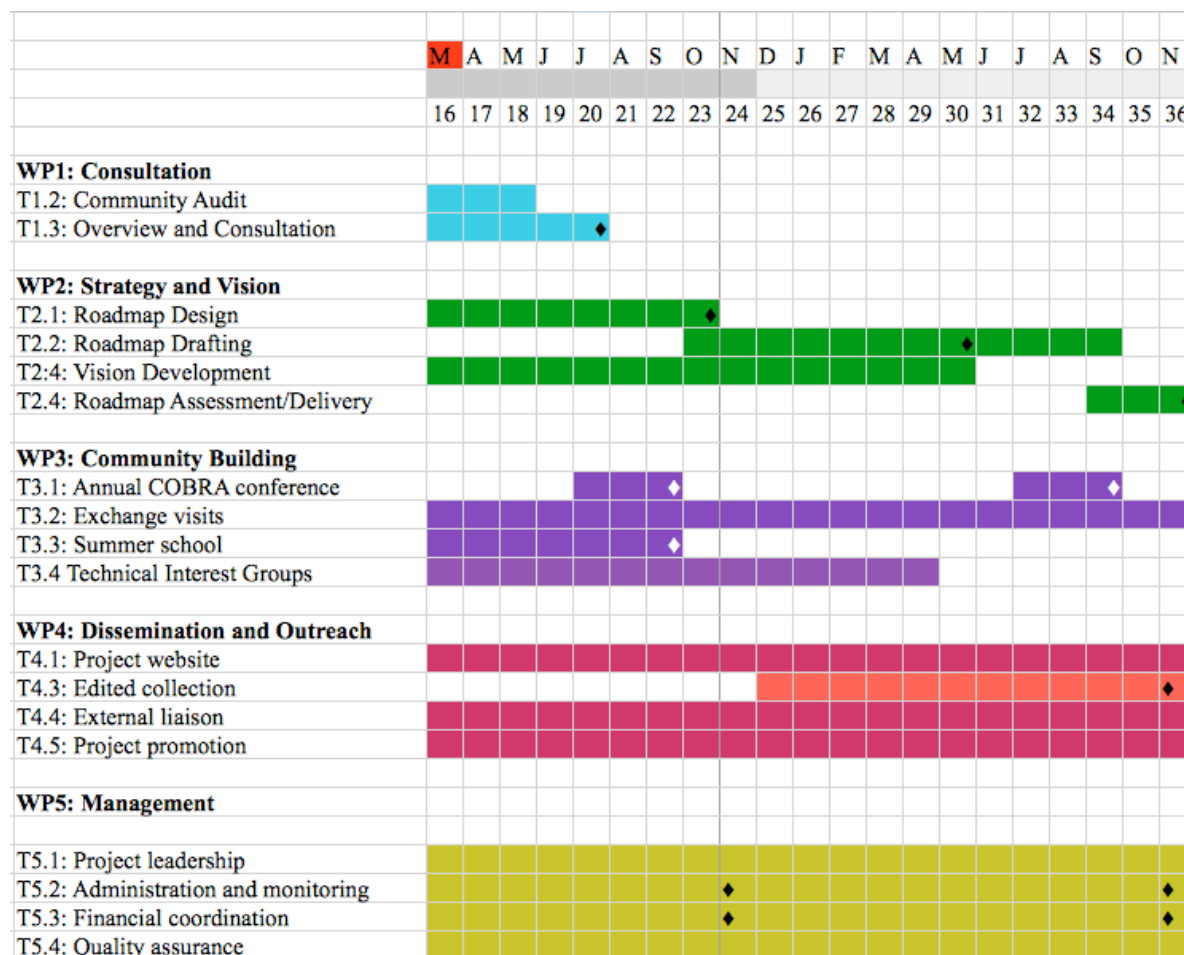
None.

3.2.3.4 Project meetings

- Project kick-off meeting: Manchester, UK, January 20-21 2011.
- COBRA special session, *fet11*: Budapest, Hungary, May 5 2011.
- First COBRA Workshop on Biological and Chemical Information Technologies (BioChemIT2011), European Conference on Artificial Life: Paris, France, August 8 2011.

3.2.3.5 Project planning and status

We propose the following slightly-modified project timeline:



Changes from the original Technical Annex are as follows:

- Community Audit (**T1.2**) extended from M15 to M18.
- Overview and Consultation (**T1.3**) extended from M18 to M20.
- Roadmap Design (**T2.1**) extended from M20 to M23.
- Roadmap Drafting (**T2.2**) extended from M32 to M34.
- Vision Development (**T2.4**) extended from M29 to M30.
- Roadmap Assessment/Delivery (**T2.5**) shortened to three months.
- Summer School (**T3.3**) moves to M22.
- Annual COBRA conference (**T3.1**) moves to M34.

The extra time on WP1 will allow us to ensure a high-quality community audit that is comprehensive, detailed as as inclusive as possible. Other movements are mainly made to accommodate this slight slippage, and will not impact greatly on the project.

3.2.3.6 Impact of possible deviations

No significant deviations or impacts.

3.2.3.7 Changes in legal status

None.

3.2.3.8 Project website

Available at <http://www.cobra-project.eu>.

3.3 Deliverables and milestones tables

Table 1: Deliverables									
No.	Name	WP	Lead	Nature	Diss. Level	Month	Actual	Status	Comments
1.1	Expertise Database.	1	SDU	O	PU	5	5	D	
1.2	Draft Vision Document.	1	SDU	R	PU	12	15	D	
3.1	Conference.	3	MMU	O	PU	12	9	D	
4.1	Project Website.	4	MMU	O	PU	3	3	D	
4.2	Project Publications.	4	MMU	R	PU		11	D	

Table 2: Milestones							
No.	Name	WP	Lead	Date	Achieved?	Actual	Comments
1	Management infrastructure.	5	MMU	3	Yes.		
2	Website.	4	MMU	3	Yes.		See T4.2
3	Dissemination strategy	4	MMU	6	Yes.		See T4.2
4	Vision document.	1 & 2	SDU	12	Yes.		See D1.2

3.4 Explanation of the use of resources

Table 3.1 Personnel, subcontracting and other major cost items for Beneficiary 1 (MMU) for the period			
Work Package	Item description	Amount in € with 2 decimals	Explanations
3, 4, 5	Personnel direct costs	13562.00	Half day per week for investigator, plus 5/12 of a year for administrator
	Subcontracting		
3, 4, 5	Remaining direct costs	1888.00	Travel, accommodation and computer/software
	Indirect costs	1081.00	
TOTAL COSTS		16531.00	

MMU employed a 0.5FTE administrator for five months. The coordinator undertook the usual management tasks. We purchased a computer and printer for the use of the administrator (and their replacement), plus the cobra-project.eu domain. Travel was spent on the *fet11* meeting and the ECAL workshop.

Table 3.2 Personnel, subcontracting and other major cost items for Beneficiary 2 (SDU) for the period			
Work Package	Item description	Amount in € with 2 decimals	Explanations
1	Personnel direct costs	28378.17	Work performed by 1 professor, 1 postdoc, 1 admin staff member.
	Subcontracting	0	None
1, 3	Remaining direct costs	3052.84	Travel and website costs
	Indirect costs	2200.17	
TOTAL COSTS		33631.18	

Professor Steen Rasmussen, postdoc Mark Dorr, and an undergraduate student (no cost), have developed an online web based stakeholder input tool, which accounts for part of the salary expenses. Professor Steen Rasmussen has, in addition, spent time interviewing and discussing ChemBio-ICT issues at professional meetings and workshops. Further included are costs for the Center administrator Lone Laursen, who has provided the necessary administrative and coordination support. Finally, travel to events organized by COBRA partners and other relevant ChemBio-ICT meetings are also included in the above costs.

Table 3.3 Personnel, subcontracting and other major cost items for Beneficiary 3 (FSUJ) for the period

Work Package	Item description	Amount in € with 2 decimals	Explanations
1	Personnel direct costs		
	Subcontracting		
1, 3	Remaining direct costs	1956.00	
	Indirect costs	391.00/136.00	
TOTAL COSTS		2092.00	

Together with SDU, FSU JENA has organized the 1st COBRA Workshop on Biological and Chemical Information Technologies (BioChemIT2011) as a satellite event of the European Conference on Artificial Life, 8. August 2011, Paris. The costs for FSU JENA include only invited speakers, according the following table:

Work Package	Amount in €	Explanation	Free text
3	295,00 €	travel costs	Prof. Gorecki, Kick-Off Meeting, 20./21.01.2011
3	755,00 €	travel	costs Dr. Kernbach, ECAL 2011, Conference 08.08.2011, Paris
3	906,00 €	travel cost	Dr. Stepanek, ECAL 2011, Conference 08.08.2011, Paris

Table 3.4 Personnel, subcontracting and other major cost items for Beneficiary 4 (RUB) for the period

Work Package	Item description	Amount in € with 2 decimals	Explanations
1	Personnel direct costs	10298.32	Salary costs for 1 Professor (1.05PM
	Subcontracting	0	None
1, 3	Remaining direct costs	3275.98	Travel costs
	Indirect costs	950.20	
TOTAL COSTS		14524.50	

Table 3.5 Personnel, subcontracting and other major cost items for Beneficiary 5 (UNIVE) for the period			
Work Package	Item description	Amount in € with 2 decimals	Explanations
	Personnel direct costs		
	Subcontracting		
3	Remaining direct costs	1,016.00	
	Indirect costs	203.00/71.00	
TOTAL COSTS		1087.00	

€827,45 travel costs for 2 people participating in the kick off meeting.

€88,72+€100.31 reimbursements paid directly to the 2 participants for local travel costs and subsistence costs.