The FSC Development kick-off meeting was held at ESTEC on 23 February 2000, the draft minutes were distributed on 24 February 2000 to all participants. These are the final minutes of this meeting; all comments received on the draft minutes have been incorporated.

Participants:

O. Bauer
J. Brumfitt
P. Claes
T. Dimbylow
J. Dodsworth
P. Estaria
K. Galloway
A. Heras
R. Huygen
J-J. Mathieu
N. Peccia
G. Pilbratt (p.t.)
J. Riedinger
P. Roelfsema
S. Veillat

TOP 1: Introduction and Objective of the Meeting:

After welcoming all participants, JRR identified the following stakeholders in the FSC development as being present:

- Project: Their goals are to get (i) a working FSC and a smooth development/integration/testing of the instruments (ii) on time (iii) within budget.
- MOC: Although they can perfectly operate the spacecraft without instruments/FSC/ICCs, this does not make a “scientifically successful” mission. Their goal is to have a scientific part of the FIRST Ground Segment ready on time with as little deviation from a “standard ESOC MOC development” as possible because any extra, mission-specific requirements on their development will increase the MOC’s cost.
- ICCs: They have a very intricate relationship with the FSC development, with both sides depending on each other.
- Project Scientist, representing three stakeholders: the PST, the FSCOT and the scientific community (observers, archive researchers and scientifically interested public).

TOP 2: Agenda:

The agenda (cf. Attachment 1) was agreed.

TOP 3: FSC presentation

- cf. VGs in Attachment 1.
- Scope: It was clarified that the CaC meeting on 6 March 2000 will not lead to a final agreement on FSC development costs as the CaC (for the entire FSC) will require Project agreement when the SIP is reviewed and agreed (GP).
- The latest available version of the FSC System URD is draft 0.3. This draft has been distributed and will be reviewed internally on 14 March 2000 (by PST, whoever the PS invites to this review, and the FSCDT), leading to draft 0.4. Draft 0.4 will be distributed no later than 20 March 2000 to ICCs,

Project, MOC and FSC for formal review on 28 March 2000 in Garching. [Note: The other documents that should be reviewed at this meeting are the FSC SPMP and the FIRST GS IRD].

- The "roadmap" document will become a fixed appendix to the SPMP; it will be updated (currently it is at draft 0.3) and distributed as part of the SPMP, which will be circulated in week 10/2000.
- Inception Phase. The status of the ICC URDs is as follows:
  - PACS: A PACS S/W URD exists; an updated version (expanded for non-S/W elements) will be available in April 2000.
  - HIFI will issue their URD before the summer holidays.
  - SPIRE will issue their URD on 17 March 2000.
- Use cases model: The importance of using the same tool in the FSC and ICCs was recognised. The FSC currently has two licenses for Rational Rose but investigations have shown that TogetherJ has significantly evolved over the past months and apparently is better suited to keep model and code in synch (which is causing some pain in INTEGRAL development).

- Objectivity: ESTEC will receive a quotation next week.

  Action 230200/1: JJM to provide a summary of what has been agreed with the Objectivity sales representative; due 26 February 2000.

  OHB suggested that the PIs may actually get a better offer (educational license) than ESA. SRON already have an objectivity license (outside the context of HIFI development)

  Action 230200/2: PR to investigate the conditions SRON have got from Objectivity; due 26 February 2000.

- DMS: SSD/SA will probably move its DMS to livelink but this should be mostly transparent to DMS users. Project have their own DMS system and do not intend to change.
- Elaboration Phase: The ICC URDs will also cover requirements arising from testing phases.
- Transition Phase: Deployments of intermediate versions of the FSC system will become operational; this is to be taken into account in the SPMP (additional function/effort for the development team to maintain corresponding versions).
- Organigram: It was clarified that support functions also report directly to the FSCDT Manager. Dashed boxes around FINDAS developers indicate that the FINDAS development may still be outsourced. A decision can only be taken in October/November 2000 when the boundaries of FINDAS have become clearer.
- Prerequisites for the start of the Elaboration Phase: The FINDAS TS will capture S/W requirements on FINDAS plus some detail normally required at DDD level. GP believes that the Scenario Document will be signed off by the Science Team in April. However, even if this were not the case there would be no direct impact on development, which would proceed on the most recent version we have got by mid April 2000.
- ICC URDs will have much in common; it is not ruled out that eventually there might be only one document for all ICCs (OHB).
- Pre-requisites for FSC v0.1: The Packet Structure ICD should be available in draft form by mid-April 2000 to be issued as part of the ITT for the satellite prime (PE); it will include specification of the maximum packet size and the number of APIDs/SIDs available to instruments.
- The FOIRD will be updated by mid-March 2000 (draft) for inclusion in the ITT. NP stressed that although the MOC is aware of these documents, they need to be iterated with the prime during satellite development before they can become ICDs.
- Formally, i.e. when compared with official HIFI schedules, Oct 2001 for availability of FSC v0.1 is late (start of HIFI ILTs in June 2001). As was clarified later, this is not considered serious *provided* the release date for FSC v0.1 does not slip.
- Pre-requisites for FSC v0.3:
  - The expected MOC deliveries are not feasible at the foreseen dates as the S/C CDR will only just have completed. ESOC/FD could possibly deliver S/W with lower fidelity (not accurately modeling the real S/C) or stubs (JD), which could also be developed by FSCDT e.g. in the form

of simple models for the slew time predictor (constant acceleration, coasting, constant deceleration) (JR).
    - The same (i.e. only "crude" models being available) might be true for the ICC observing time predictors in FSC v0.3. As long as the I/Fs are properly defined and implemented by the stubs or crude models, there should be no impact on FSC development.
    - Also, ESOC/FD will not necessarily deliver S/W ready to plug into the FSC system; it will be developed by ESOC/FD for use in their own environment (operating system, compilers, etc.) and delivered "as is" (NP).
    - Calibration uplink data will be embedded into the CUS, i.e. it is unlikely that a specific ICD is needed.
- Pre-requisites of FSC v0.4: A DDS ICD will be available but initially it will not contain the detailed S/C TM format or only a first draft of this format, depending on what will be available from industry (JD/NP).
- Philosophy of FSC system versions: The relationship between FSC system versions and major instrument or S/C milestones is not apparent and the FSCDT may make its life more difficult than necessary by planning to provide a total of 6 incremental versions of the system (PE). During later discussion it was agreed that the philosophy and the number of FSC system versions to be delivered is probably ok (because the overhead traditionally associated with making a "system release" should be comparatively small as the system remains integrated at all times from FSC v0.2 onward) but that the SPMP should (i) make apparent the relationship between FSC system versions and instrument and S/C milestones and (ii) elaborate on the functionality of each FSC system version from the point of view of every stakeholder.
- Development issues:
    - FSC involvement in ICC development ? (OHB)
    - Continued use of CVS is to be confirmed at the end of the Elaboration Phase. CVS is to be used for version control only (RH/JB).
    - Besides instrument simulators the FSC will need MOC support for FSC stand-alone testing, e.g. a mini-MOC (JRR). Provision of any such items (e.g. in this case NCTRS and TBD-fidelity S/C simulators would also be required) is not currently foreseen in the ESOC costs and such "extras" would have to be clearly identified in the MIRD and costed in the MIP (NP/JD).
- It was agreed to specifically address in the afternoon:
    - MOC support
    - How the FSCDT schedule fits with ICC schedules
    - Short term schedule for Elaboration Phase activities.

TOP 4: PACS presentation by OHB

- cf. Attachment 2 for VGs.
- Project Office has been set up: All mail should be sent to this Project Office and it should be copied on all e-mail exchanges.
- PACS personnel works on FIRST between 20 and 80% of their time. Currently in place are 6 fte's (compared with 14 fte's in 2000 in the instrument proposal). External contributions do not come as planned this year but additional positions will be filled next year to reach the level advertised in the instrument proposal.
- Start of AVM ILT in September 2001: TM/TC I/F + Uplink/Downlink + RT system + Test control + RTA replay functions are required. FINDAS availability is not absolutely required at the start, provided data that is initially produced can be ingested into FINDAS later on.
- Start of CQM ILT in May 2002: Add IA/QLA (low level functionality) + CUS to the test set-up ⇒ FINDAS needed
- Sept 2003: IA (full version) + CUS (full version)
- The latest version of KJK's Technical Note on instrument commanding will be distributed after agreement by all ICCs.
- The PACS proposal for streamlining the documentation tree to avoid unnecessary duplication across S/W subsystems is still under discussion by the ICCs.

TOP 5: HIFI presentation by PR

- If this were necessary for consolidation of the use cases/COM, URD and SIP activities could be reshuffled depending on FSC and Project priority.
- The use of CVS for configuration (i.e. version) control is not in line with having CM as an integral part of FINDAS.
- Schedule: In June 2001 (formal date) a complete instrument will exist (breadboard with non-qualified, but known to be qualifiable, components) which can handle complete observations. The full test environment could be used from then onwards although not everything will necessarily be needed by day one.
- Staffing: 6 to 7 fte's will be available by summer 2000; currently there are 3 to 4 fte's (spread over more persons with the distinction between HIFI instrument vs. HIFI ICC activities not always being clear). The FSCDT-proposed 2 days workshop in May 2000 will be supported by appropriate manpower from HIFI ICC.
- CUS development has not yet started and no development schedule is available.

TOP 6: SPIRE presentation by TGD

- 7 people currently involved, corresponding to 2 to 3 fte's which will ramp up to 5 fte's during the remainder of 2000.
- FINDAS ILT would not be needed before early 2002.
- SIRD: As the SIP is produced, comments on the SIRD are generated. PE stated that the SIRD (from September 1997) is out-of-date and has been superceded by events (e.g. FIRST/PLANCK carrier configuration) in a number of known areas; to simplify reverse engineering of the SIRD after reception of the SIPs he requested that all teams writing SIPs should likewise flag inconsistencies in the SIRD and provide this as feedback to Project before summer.
- Staff will be available to support the COM workshop in May and support COM definition from then onwards.

TOP 7: MOC presentation by JD

- The MIRD will be issued by project in early 2001. The MIP will be available ~6 months later.
- Simulators (adequate for MOC purposes) are normally available
  - as v1 at L-18 months (⇒ end September 2005 on the current schedule)
  - as v2 at L -14 months (⇒ end Jan 2006, in time for preparing the first SVT)
- MOC Systems are normally available
  - Core 1: L-21 months (⇒ March 2005)
  - Core 2: L-16 months (⇒ September 2005)
  - Final: L-12 months (⇒ March 2006)
- Instrument simulators: The emphasis in ESOC-produced instrument simulators is on HK data relevant to MOC (FOP and CRP) procedures. Optimally, instrument models are run in emulation (with some functional modeling of instrument environment) because in this case only the on-board memory image needs to be updated (rather than having to modify functional models in simulator code). Instrument simulators with a larger scope (e.g. to simulate science data) can be developed outside ESOC and a detailed specification exists for the S/C simulator I/F to such instrument simulators.
- OBSM: An interface document exists for SCOS-2000 but it is not mission specific and assumes a MIL 1750A processor (which is not what FIRST instruments use).
- A new position is expected to be filled in April 2000 to support (in particular) interfaces between the MOC and the rest of the FIRST Ground Segment.

TOP 8: Compliance of proposed FSC schedule and functionality of FSC system versions

- PE: Project does not consider itself to be a user of the FSC system; in particular, Project AIV will not accept delays in the delivery of instrument models because "FINDAS functionality was not available in time". Project have advocated the concept of "smooth" transition. In OHB/PR's view this requires incremental versions of FINDAS being available in time to prepare instrument model deliveries including ILTs.
- AH: FSC v0.3 requires AOT user manuals to be available from the instrument teams. PR: User manuals will be developed before AOT commanding because the commanding may evolve as the instrument is better understood without impacting the functionality requested by a user's selection of a particular AOT. V0.3 functionality may have to be re-assessed to align it with the concept of a two-phase proposal submission cycle. In other words: the full phase 2 submission functionality is not needed in FSC v0.3, which could lead to a relaxation of need dates for some pre-requisites. The FSCDT will assess the possible impact such a staggered implementation of proposal submission phase 1/phase 2 functionality would have compared to implementing proposal submission in one go with phase 1/phase 2 functionality being two different views presented to the user of the same set of objects.
- FSC v0.4: same comment as on FSC v0.3.
- ICCs will receive FINDAS development releases; more generally: ICCs will not use (and have to wait for) official system releases; they will use the quasi-continuous developer releases and thus benefit from any increase in system functionality "immediately".

TOP 9: Detailed discussion on Elaboration Phase schedule.

Action 230200/3: Each ICC to identify two participants for use cases and COM development; due 17 March 2000.

TOP 10: AOB

- GS reviews will be held in line with ECSS standards (PE).

Action 230200/4: PE to provide dates for GS Reviews; due 17 March 2000.

TOP 11: Conclusions

- PR believes that FINDAS is more advanced than is generally believed/apparent. The joint ICCs/FSC work on the FINDAS prototype system testing has resulted in a substantial gain in experience of individuals with client/server applications and of teams with how such a distributed development could be made to work.
- TGD welcomes the FSC-proposed development outline as an initial schedule framework on which future discussions can be based (even if some of the details then turn out to be wrong or out of step).
- JD: Need for an integrated schedule between the different elements of the GS; it is important that all special requirements on the MOC that arise from development of the FIRST Scientific Ground Segment are captured and recorded in the MIRD.
- NP: FINDAS is a risk as this is a first time development.
- PE: FINDAS remains to be a risk area as its scope and boundary still are not clear. Its development needs to be tightly controlled and monitored by sufficiently closely spaced milestones/checkpoints. FSCDT and ICCs should be ready to take the necessary corrective actions in order to preserve the F/P schedule (AVM, CQM delivery dates) should problems with FINDAS implementation develop.

- AH welcomes agreement on the short term plan for FSC URD review/approval that was agreed during the meeting. The overall FSC development schedule is OK from the science user point of view.
- JRR will send around the first FSCDT monthly activity/progress report at the end of this week (because of the Dutch school holidays) and encourages the ICCs to (i) look at the level of detail provided and decide whether such reports would be a good way to inform entire teams of each other's activities, (ii) do the same. In addition, the need for regular progress meetings/telecons at management level was identified.

  Action 230200/5: JRR to propose details of and set-up a corresponding meeting or teleconference scheme; due 17 March 2000.

Attachment 1: FSC presentation
Attachment 2: PACS presentation
Attachment 3: HIFI presentation
Attachment 4: SPIRE presentation
Attachment 5: MOC presentation

Summary of Actions

Action 230200/1: JJM to provide a summary of what has been agreed with the Objectivity sales representative; due 26 February 2000.

Action 230200/2: PR to investigate the conditions SRON have got from Objectivity; due 26 February 2000.

Action 230200/3: Each ICC to identify two participants for use cases and COM development; due 17 March 2000.

Action 230200/4: PE to provide dates for GS Reviews; due 17 March 2000.

Action 230200/5: JRR to propose details of and set-up a corresponding meeting or teleconference scheme; due 17 March 2000.

JRR, 7 March, 2000

Attachment 1:

Viewgraphs presented by FSCDT

FSC Development Kick-off Meeting

ESTEC, 23-Feb-2000

Agenda

10:30 - 10:40	Introduction and Objective of the Meeting	JRR
10:40 - 11:40	FSC Presentation	JRR
11:40 - 12:10	PACS Presentation	OHB
12:10 - 12:30	HIFI Presentation	PRR
12:30 - 12:50	SPIRE Presentation	TGD
12:50 - 14:00	Lunch	
14:00 - 14:30	MOC Presentation	JD
14:30 - 15:00	Compliance of proposed schedule and functionality of FSC system releases with user requirements and overall Project schedule	GP/PE/ ICCs/MOC
14:45 - 15:30	Detailed Discussion on Elaboration Phase Schedule	FSC/ICCs/ MOC
15:30 - 15:45	Summary of actions taken & AOB	all
15:45 - 16:00	Conclusions	GP

Meeting Objectives - 1

- Assess the input available: Is this sufficient to start development ?
- Assess the manpower available at FSC and ICCs: Is this sufficient to start development and to meet the first milestones in 4 and 8 months ?
- Do the major foreseen releases of the FSC system satisfy stakeholder requirements in terms of functionality and schedule ?
- Identify the prerequisites for the FSC system releases in terms of external agreements & deliveries: Are the assumptions made by FSC realistic ? If they are not: What corrective action do we agree to take ?

Meeting Objectives - 2

- Elaborate on the “agreements” reached at the October 1999 Vilspa recess concerning (i) the development approach (iterative rather than waterfall), (ii) selected tools & environment, (iii) periods of co-location for development of the COM.
- 4 months after this Vilspa recess: Can the ICCs make any commitment on the development approach beyond the elaboration phase, e.g. “common development” ? Note that initial experience with a distributed development has become available since this meeting...

Scope of FSC Development

- Defined by FSC URD vis-à-vis users / their representatives
- Defined by FIRST Operations Scenario Document vis-à-vis intended use of the system through different phases
- Defined by FGS IRD vis-à-vis top-level MOC/FSC/ICC I/Fs
- Defined by SPMP vis-à-vis deliverables, schedule, and prerequisites (including external deliveries)
- Is constrained by the to-be-agreed CaC (planned meeting 6 March 2000)
- Includes development of data store plus infrastructure elements (FINDAS technical specification)

Overall Development Process

- Outlined in the "road map" document ⇒ SPMP
- 4 main phases
  - Inception: Capturing requirements and scenarios; defining scope of system; initial selection of development tools
  - Elaboration: Use cases, object model, confirmation of development tools, system architecture specification, prototyping, risk reduction
  - Construction: Iterative refinement of use cases, coding, and user tests
  - Transition: Preparation for the system to become operational through a series of simulations and end-to-end tests; transfer to the user and to FSC operational location.
- Training accompanies development on a "just-in-time" basis.

Inception Phase Output - 1

- FIRST Operational Scenario Document, Draft 0.95, 22 Feb 2000: Considered sufficient for start of Elaboration Phase
- FIRST Ground Segment IRD, Draft 0.2, 21 Jan 2000: Considered sufficient for start of Elaboration Phase wrt “downlink” aspects; insufficient wrt database queries and calibration components feeding back into the “uplink”
- FSC URD, Draft 0.3, 16 Feb 2000: Considered sufficient for start of Elaboration Phase
- ICC URDs: At the VILSPA October 1999 recess these were promised by Xmas 1999; current status: PACS Apr 2000, HIFI summer 2000, SPIRE ?? $\Rightarrow$ not available for start of Elaboration Phase but absolutely required for FINDAS and COM-related aspects of the Elaboration Phase $\Rightarrow$ delays FINDAS and COM availability for ILTs

Inception Phase Output - 2

Initial selection of tools, and development environment

- Hardware: Sun workstations
- Operating System: Solaris 7
- Language: Java (JDK 1.2 or later)
- Database: Objectivity
- Modelling Notation: UML
- Modelling Tools: Rational Rose (TBC)
- Configuration Control: CVS
- Documentation System: DMS + FSCDT web pages for drafts
- Action Item Tracking: Excel 97

Elaboration Phase Output

- System modelling: FSC URD + ICC URDs + Scenario Document
  ⇒ use case model
  ⇒ object model including interfaces
  ⇒ architectural design
- System design: FINDAS (client/server architecture), user I/Fs ⇒ FSC system design document
- OODBMS and other tools: trained developers
- Confirmation of selected development tools (Rose, CMS), platform (Objectivity, Solaris) and development environment (Java 2)
- Coding standards
- Availability of a first, partial system (FSC v0.1) at the end of this phase reduces development risk and supports ILTs

Elaboration Phase Current Status

- Started work on the use cases document (Issue 1 end June 2000)
- Started work on FSCDT web pages (“public” in March 2000)
- Started work on SPMP (Issue 1 to be agreed in April 2000)
- 24 man-days of training so far
  - Requirements Management with Use Cases
  - OOAD using UML
  - Objectivity DB/Java
  - Rational Rose 98i
- QA division contacted for spot support (document reviews)

Construction Phase

Output:

- Developer releases (every 6-8 weeks), user releases (2-3/year), system versions (one/year)
- For each new developer release:
  - Implementation of additional & refinement of existing use cases
- For each new user version:
  - COM refinement, additional/improved user I/Fs, FINDAS enhancements
  - User tests
  - Schedule for user versions is driven by user-required functionality at certain milestones

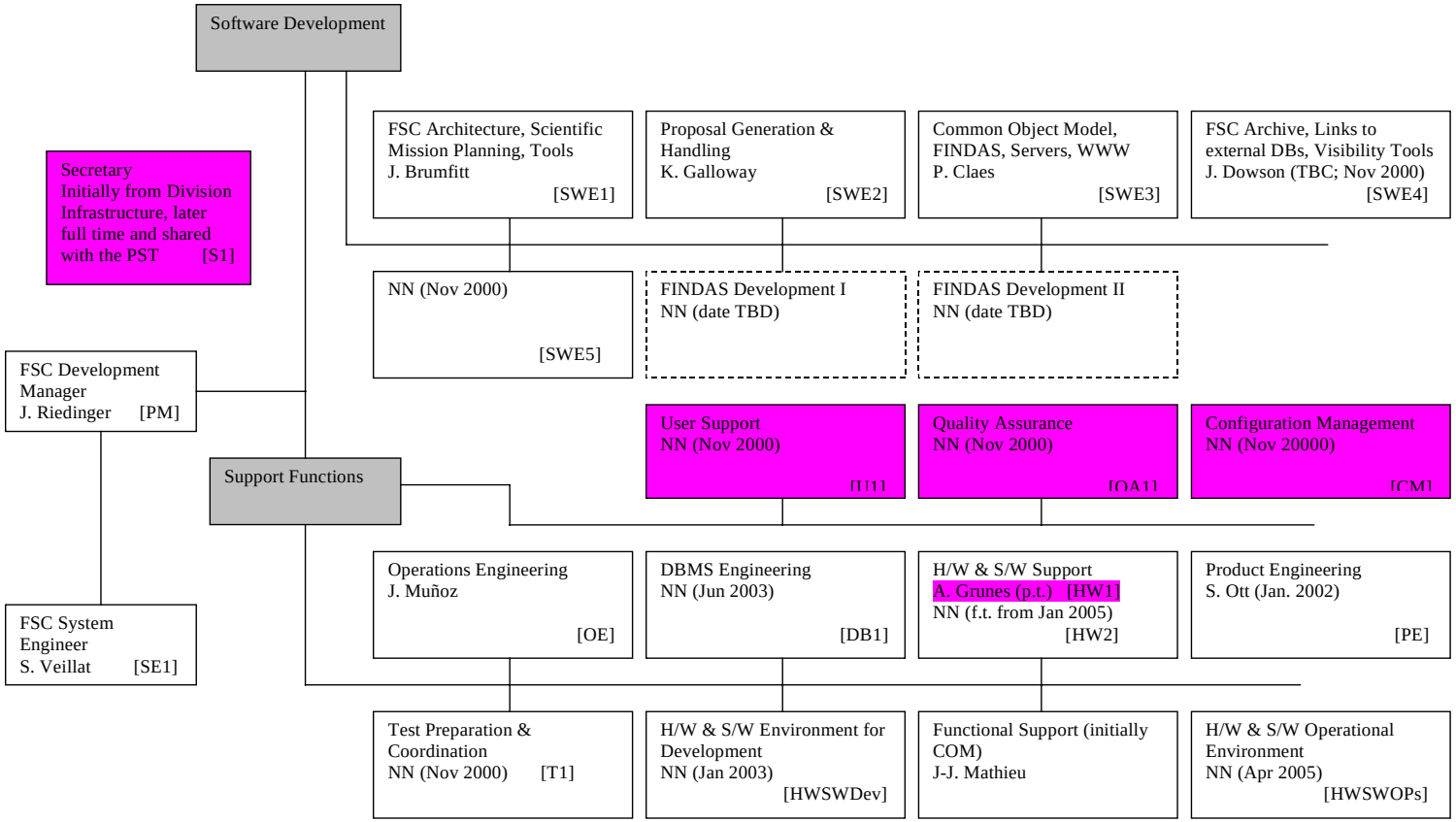
Emphasis: Have an integrated system early (end 2002); maintain this integrated state throughout the Construction Phase

Transition Phases

Leaving this as “to be considered later” would be a serious flaw because:

- Parts of the FSC system will become “operational” at different system versions
- Parts that have become “operational” require FSC support, e.g. in terms of installation and securing database operational contents, and maintenance in parallel with on-going development
- This consumes resources and therefore needs to be factored into the development schedule & resource allocation

Development Team Organigram



Prerequisites for Elaboration Phase

To reach	End of Elaboration Phase, Part I
by	Oct 2000
the following prerequisites have to be met	Inception Phase outputs • Near-term schedule and WPs for Elaboration Phase: Mar 2000 • SPMP Issue 1.0 agreed: Mar 2000 • ICC URDs: draft Mar 2000, v1.0 Apr 2000 • Initially agreed FSC System URD v1.0: Apr 2000 • FGS IRD v1.0: Apr 2000 • FST agreement on FIRST Operations Scenario Document: Apr 2000
leading to…	Elaboration phase, Part I outputs • First completed iteration of use cases: Jun 2000 • FSC system architecture: Oct 2000 • FSC/ICC COM: Oct 2000 • FINDAS Technical Specification: Oct 2000 • Development environment: Oct 2000 • Tools confirmation: Oct 2000
resulting in…	Readiness to start work on FSC v0.1
Proposed steps	• FSCDT generates initial COM by end June 2000 • Iteration of this model with ICCs through discussion and colocation in the period Jul-Sep 2000

Prerequisites for/Functionality of FSC v0.1

To reach	End of Elaboration Phase = FSC v0.1
by	Oct 2001
the following prerequisites have to be met	• Project input on TM header and specific data fields (e.g. APIDs/SIDs, maximum packet size, etc): Jun 2000 • FINDAS detailed Technical Specification for ILT: Nov 2000 • Detailed ILT COM (TM & Observation): Dec 2000 • Realtime TM ICD (partial: instrument TM format only): Dec 2000 • Non-AOT observation ICC-FSC ICD (TBC): Dec 2000 • Scheduled commanding FSC-MOC ICD (partial): Dec 2000 • TM data FSC-ICC ICD (partial): Dec 2000 • OBSM ICD: Dec 2000
to support	ICCs for ILTs
by allowing	• TM storage & retrieval • Observation storage • Observation instrument commanding request generation (TBD; this is ICC-provided but is it integrated into FINDAS ?)

Prerequisites for/Functionality of FSC v0.2

To reach	FSC v0.2
by	Dec 2002
the following prerequisites have to be met	• FSC URD v2.0: Dec 2001 • Detailed FSC v0.2 COM (Proposal, Observation, User): Feb 2002 • Firmed-up FSC System Architecture: Jun 2002
to support	• PHS (AOT-independent proposal generation support tools) • User management & access control • DB browser

Prerequisites for/Functionality of FSC v0.3

To reach	FSC v0.3
by	Dec 2003
the following prerequisites have to be met Notes: The further down-stream we get in the projection, the more tentati-ve exact need dates become. ICD titles are indicative only	• AOT definition of required user input frozen: Jun 2002 • Non-AOT observation ICC-FSC ICD (TBC): Dec 2002 • Scheduling constraints ICC-FSC ICD (TBC): Dec 2002 • Detailed FSC v0.3 COM (Schedule): Feb 2003 • Instrument Time Estimator ICD: Feb 2003 • Calibration data uplink ICD: Feb 2003 • Slew predictor S/W ICD: Feb 2003 • Attitude constraints S/W ICD: Feb 2003 • Instrument Time Estimators S/W: Jul 2003 • Slew time predictor S/W: Jul 2003 • Attitude constraints S/W: Jul 2003
to support	• FSC v0.2+ • Observation submission through AOTs (operational system for entering Key Programmes) • MPS draft schedule generation (automatic and interactive) • MPS long range planning

Prerequisites for/Functionality of FSC v0.4

To reach	FSC v0.4
by	Dec 2004
the following prerequisites have to be met	• Schedule commanding FSC-MOC ICD: Dec 2003 • NRT TM ICD: Dec 2003 • TM MOC-FSC ICD: Dec 2003 • Ancillary data MOC-FSC ICD: Dec 2003 • Detailed FSC v0.3 COM (commands, products): Feb 2004 • Observation command generation FSC-ICC ICDs: Feb 2004 • Observation products FSC-ICC ICD: Feb20 04 • Ancillary data FSC-ICC ICDs: Feb 2004 • Calibration data downlink ICD: Feb 2004 • Instrument Command Generators (AOT subset): Sep 2004 latest • QCP SW (AOT subset): Sep 2004 latest
to support	• FSC v0.3+ • Entry of Guaranteed Time proposals (operational) • MPS schedule command request generation for a subset of AOTs • Initial QCP version

Prerequisites for/Functionality of FSC v0.5

To reach	FSC v0.5
by	Dec 2005
the following prerequisites have to be met	• Instrument Command Generators complete during first half of 2005 • QCP S/W (AOT subset): first half of 2005 • Fully functional and tested instrument and satellite simulators: mid 2005 • MOC S/W implementing FSC-MOC & ICC@MOC-MOC ICD functionality: mid 2005
to support	• PST training • FSCOT training • End-to-End Tests • GS operational Validation

Prerequisites for/Functionality of FSC v1.0

To reach	FSC v1.0
by	Dec 2006
the following prerequisites have to be met	• QCP S/W to support all AOTs: end 2005 • Transfer of H/W and S/W to the FSC operational location: second half of 2006 • Fully functional MOC: end 2006
to support	Operations

Development: Issues - 1

ICC involvement in FSC development: What ? When ? Who (names) ? How much ? Where ? How do we decide ? This is what the FSCDT proposes on the short term…

- Sign off Issues 1.0 of the FSC System URD, FIRST Operational Scenario Document, SPMP and FIRST GS IRD by 14-April-2000. To get there, formally review these documents on 29-March-2000 (TBC) in a one-day meeting at ESTEC.
- Complete initial use case model by end June 2000. To get there in view of the missing ICC URDs, hold a two-day workshop in May 2000 at location TBD.
- Complete initial Common Object Model by October 2000. To get there, foresee extensive telecon exchanges and two or three meetings during July through September 2000.

(cont'd)

Development: Issues - 2

(cont'd)

- Following agreement on Issue 1 of the FIRST GS IRD and the first drafts of COM and the system architecture, the FGSSE (or a part thereof) needs to
  - identify the FINDAS TS (October 2000),
  - identify the subset of this TS which need to be realised in FSC v0.1 (November 2000),
  - delegate grinding out the details of these ILT I/Fs at the level of ICDs (e.g. TM, ancilliary data and (pre-)TC I/Fs) (December 2000).

Development: Issues - 3

FSCDT vs ICC responsibilities for S/W development, tests, installation, integration. Proposed baseline:

- S/W is delivered with test harness and standard documentation (STD, SRN plus User Manual if applicable) by the S/W developer. If considered necessary (e.g. because of dependency of the deliverable on a complex environment), delivery is preceded by “on-site” inspection of the deliverable, test harness, etc.
- If the deliverable is self-contained (e.g. a version of FINDAS), the “recipient” may request installation by the “originator”.
- If the deliverable is a “package” (e.g. instrument command generator), first-time integration is performed by the recipient of the delivery. After first-time integration, no dedicated effort should be required to keep the package integrated even if a new version is delivered.

Development: Issues - 4

Common development, common CM environment ?

- Can we agree on every site using CVS (at least initially) ?
- Do we need a common repository from the start ? From when on ? What for ?
- SSD-SA will phase out support for current DMS and likely replace it with “Livelink”.
- Distribution of all “draft” documents, action item lists, glossaries, list of acronyms via links on web pages (there must be better ways than e-mails with 100 kbyte attachments) ?
- What commonality do we foresee for actual development (this was addressed at the October 1999 Vilspa recess but nothing beyond establishing a COM could be agreed. Do we know more now ? When and how do we decide ?

Development: Issues - 5

Adequacy of FSCDT schedule vs ICC/FSC users/Project ?

MOC & Flight Dynamics support ?

- How do we initiate this ?
- Who should be in the loop ?
- Direct negotiations on interfaces ? Or is MOC affected ?
- Direct negotiations on delivery contents and dates ?
- Will it be a support system “outside” the MOC as on ISO & XMM ?

Attachment 2:

Viewgraphs presented by PACS

FSC Development Kick-off Meeting

PACS ICC Contribution

Otto H. Bauer

FIRST-PACS ICC

- PACS ICC Management
- Work Packages
- Milestones
- Personnel
- Present Activities
- Short Term Schedule

FIRST-PACS ICC

- **Milestones**
  - AVM (Warm Electronics) ILT — Sep 2001
  - CQM + AVM ILT — May 2002
    - Delivery to ESA — Apr 2003
  - FM ILT — Sep 2003
    - Delivery to ESA — Jul 2004
  - FS ILT — Jan 2005
    - Delivery to ESA — Oct 2005

  - CQM IST — mid 2003 ?
  - FM IST — end 2005 ?

  - E-E tests, SVT — mid 2006
  - Operations Readiness — Dec 2006

FIRST-PACS ICC

- **Personnel**

– O.H. Bauer	MPE	ICC Manager
– D. Lutz	MPE	Science Co-ordinator ICC Deputy
– R. Huygen	KUL	S/W System Engineer ICC Deputy
– M. Benedettini	IFSI	Instrument Modes
– H. Feuchtgruber	MPE	Operations
– N. Heinecke	MPE	H/W System Support
– U. Klaas	MPIA	Calibration
– J. Schmidt	Uni Jena	tbd !
– E. Sturm	MPE	Scientific Data Analysis
– B. Vandenbussche	KUL	FINDAS Data Model
– E. Wieprecht	MPE	Instrument Data Analysis
– E. Wiezorrek	MPE	S/W Development

FIRST-PACS ICC

- **Present Activities**
  - Common Commanding Concept for FIRST
  - Common EGSE Working Group for FIRST
    - EGSE Test Control URD
    - Agreement on SCOS 2000
  - DPU/ICU OBS Working Group
  - Documentation Tree
  - Work Package Update and Assignment of F.T.E.s

FIRST-PACS ICC

- **Short Term Schedule**

– ICC System Engineering Meeting #1	KUL	Mar 6/10
o ICC S/W URD Review		
o FINDAS Funcionality for AVM ILT		
o PACS Data Model		
o CUS Requirements		
– PACS OBS Meeting #1	IFSI	Mar 16/17
– SIP Review	MPE	Apr 3/7
– ICC S/W URD Issue 1.0		Apr 28
– SIP Issue 1.0		Jun 16
– ICC System Engineering Meeting #2	IFSI	May 8/11
– ICC Meeting #5	IFSI	May 12

Attachment 3:

Viewgraphs presented by HIFI

Unfortunately not available

Attachment 4:

Viewgraphs presented by SPIRE

SPIRE URD/SIP DEVELOPMENT PLAN

- **ESTABLISHED A "TASK FORCE" ATTITUDE FOR THE PRODUCTION OF SPIRE ICC DOCUMENTATION:**
  - **AGGRESSIVE SCHEDULE OF WEEKLY WORKING MEETINGS**
  - **ON-LINE & OFF-LINE WRITING OF DOCUMENTS**
  - **TASKS ASSIGNED FOR FOLLOWING WEEK'S MEETING**

- **ISSUE 1.0 OF SPIRE ICC URD PLANNED FOR 17TH MARCH**

- **ISSUE 1.0 OF FUNCTIONAL TREE, PRODUCT TREE, WORK BREAKDOWN STRUCTURE & WORK PACKAGE DESCRIPTIONS PLANNED FOR 14TH APRIL**

- **REVIEW & START REVISION OF SPIRE SIRD & SIP DURING THIS PROCESS**

- **SPIRE ICC STEERING GROUP TO MEET THE WEEK OF 24TH TO 28TH APRIL TO APPROVE DOCUMENT SET**

- **FORMALLY START WRITING SPIRE ICC SIP AFTER THIS MEETING, TO BE ISSUED IN JUNE**

- **ONCE THE SIP IS AGREED WE WILL**
  - **ALLOCATE THE WORKPAGES**
  - **START WRITING THE NEXT LEVEL TECHNICAL REQUIREMENTS DOCUMENTS (SUCH AS SRD, HARDWARE SPECS…)**

Attachment 5:

Viewgraphs presented by ESOC

Unfortunately not available