

## Annex 6: Enabling Technologies and Applications - Detailed Findings (Group C-D)

### A6..1 Introduction

This study covered most Key Action areas as shown in Table A5.1 below.

CPA 1	KAIL.1 RTD Spanning	KAI.4.1 Cross Lingual
CPA3	KAIL.2 Work Methods & tools	KAI.4.2 Networked Services
FET Open	KAIL.3 Management Sys.	KAI.4.3 Translation
FET P2	KAIL.4.1 Security	KAI.4.4 Speech Technologies
FET SM	KAIL.4.2 Security	KAI.4.5 Support Measures
IMS	KAIL.4.3 Security	KAI.4.6 Multimodality
INCO	KAI.5 Support Measures	KAI.5 Info Access and Filtering
KA II 1	KAI.2 Flexible Universities	KAI.6 Support Measures
KAI.2 Health RTD	KAI.2.1 AV Production & Publishing	KAI.6. Nwk Management & IS
KAI.2 Health SM	KAI.2.1 AV P&P SM	KAI.2 Communications & Networks
KAI.3 Elderly & Disabled	KAI.2.2 Personalisation	KAI.3.1 Software Engineering
KAI.4 Admin RTD	KAI.2.2 Personalisation SM	KAI.3.3-4 S/W Methods & Info Man
KAI.5 Environment	KAI.2.3 Cultural Heritage	KAI.4.1
KAI.6 Transport	KAI.2.4 Digital Libraries	KAI.4.2
KAI.6 Transport SM	KAI.2.4 Digital Libraries SM	KAI.4.3
KAI.6 AREA 2 (AM)	KAI.3.1 Personalised Learning	KAI.5 Mobile & Personal Coms
KAI.6 SM	KAI.3.3 Education & Training	KAI.7.2 Subsystems
		KAI.8.1-2 Microelectronics & appls

Table A5.1 : Scope of Enabling Technologies and Applications Study

There are more than 400 proposals in this area. For the purposes of categorisation and hence analysis, the Group used the following technology categories (shown in Table A5.2)

Technology Code	Category Description
1	Value/Support/Accompanying Measures
2	Technologies of Optimisation
3	Software Engineering
4	Production and manufacturing
5	Knowledge Engineering and Management <ul style="list-style-type: none"> <li>1. Knowledge-Based Systems (KBS) for real time applications</li> <li>2. KBS for documentation</li> <li>3. Expert Systems and Engineering Tools for design, manufacturing and maintenance</li> <li>4. Corporate Knowledge Management Systems</li> <li>5. Knowledge for Collaborative Engineering</li> <li>6. Specific proposals</li> </ul>
6	Security Technologies
7	Agent/Middleware Technologies
8	Technologies for Generic Applications
9	Service Platforms and Facilities Technology
10	Human Interfacing inc. Virtual Reality

Table A5.2 : Technology Categories

Figure A5.1 shows how these technology categories interact and provides a logic behind the classification

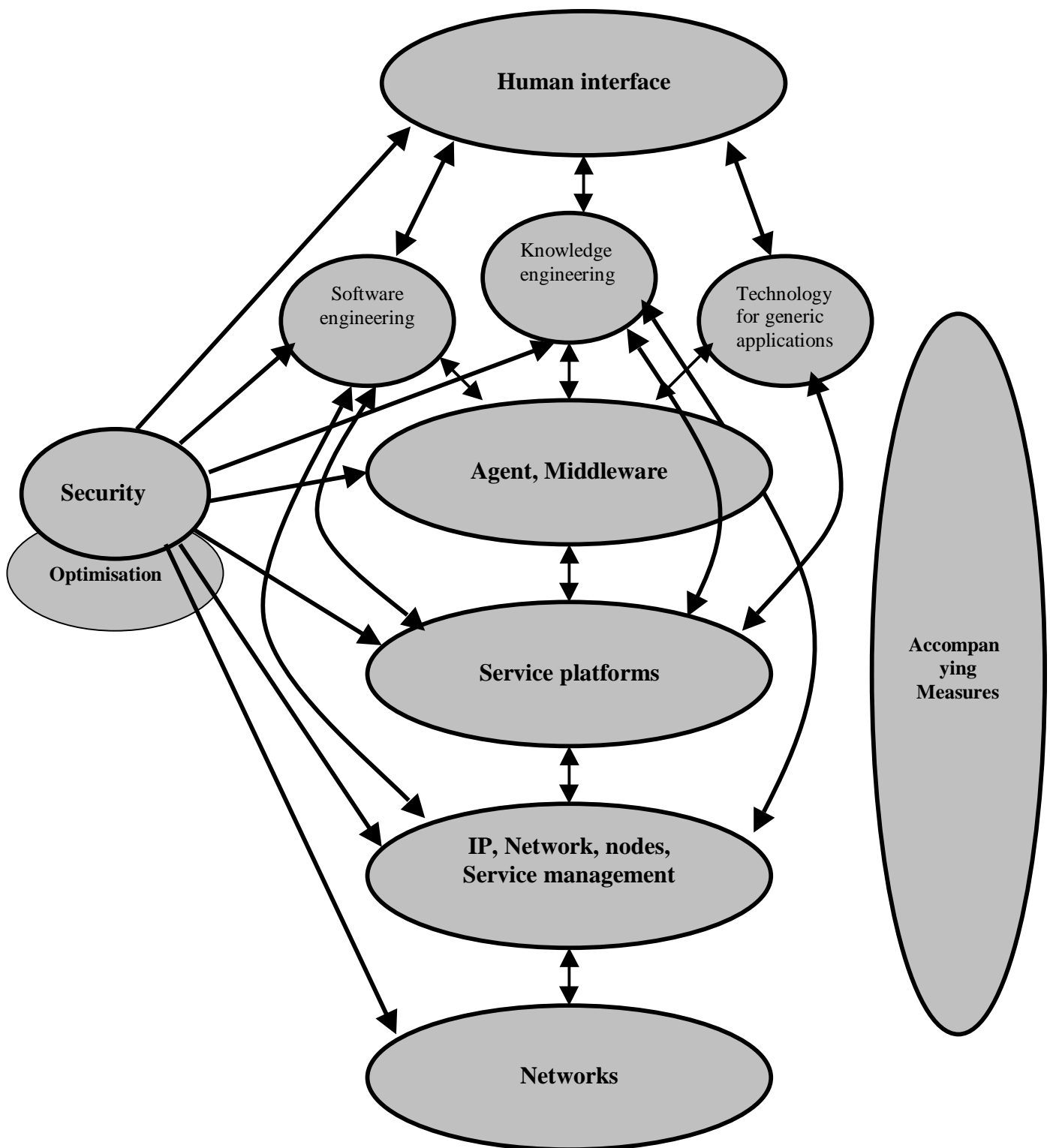


Figure A5.1 : Interaction of Technology Categories considered

Most of the proposals within these categories had a very wide market spread (see Table A5.3 Market Categories). This means that, for example, proposals within the technology category Knowledge Engineering and Management covered markets that ranged from Finance and Banking through to Health Care.

The Group received a large number of proposals related to e-commerce. This area flows through many of the technology categories shown above. Where appropriate, the Group has commented separately on e-commerce issues in the following sections.

Generally, the Group did not attempt to identify the synergy between proposals within a given Action Line. The PIM team understands that the Commission, as part of its negotiations with the various proposals will address this issue. However, the Group did review how proposals within a given technology category were spread over several Action Lines.

Market Code	Category Description
1	Administration/Non-profit/Public Sector/EU-Support
2	Software Market
3	Finance and Banking
4	Production and Manufacturing
5	Retail / Consumer Markets
6	Services 6.1 Collaborative working tools 6.2 Corporate Information Management 6.3 Business Process Development 6.4 Marketing/Brokering/Logistics Tools 6.5 Human Resource Management Tools
7	Healthcare (inc. Elderly and Disabled)
8	Media and Advertising
9	Education and Awareness
10	Electronic Industry
11	Network and Service Operators
12	Telecom Manufactures
13	Emergency Services
14	Auto-industry, Manufacture and Users
15	Non Telecom Service Providers
16	Transport Service Providers
17	Longer Term Support Projects

Table A5.3 Market Categories under which the proposals reviewed fell

The major focus of proposals was in the market range 1 (Administration) to 9 (Education ). There were relatively fewer proposals in other market categories such as Electronics or Emergency Services. In particular there were a large number of proposals within the market category “Services” and “Media”.

Annex 7 contains a complete list of proposals reviewed, and brief statements of their main theme.

## A6..2 Content of the proposals

The technology areas covered by the Group ranged from optimisation systems through software engineering to application areas such as security and technologies for generic applications.

In general terms market coverage was good. However, the Group felt that real end-user involvement is limited. This involvement is key in ensuring that, for example, projects use standards, sufficiently open technology and ultimately are appropriate for a given end user market. Many of these issues are also related to the creation of critical mass i.e. an acceptance by users that their criteria have been met.

### **E-Commerce**

There is good coverage of e-commerce-related issues throughout the various technology categories. Unfortunately, this group of proposals featured users that either were not true end-users (e.g. they were also technology developers) or they were absent/poorly involved. At a technical level, there is also limited reference to issues such as security and IPR issues, both “hot topics” in the e-commerce area. There is also the issue of timeliness. The e-commerce area is developing rapidly and the Group felt that some proposals may have problems due to this.

Finally, the Group noted that e-commerce has the potential to have a profound impact on the way companies internally conduct their business and how they operate externally. In turn this will impact on the types of applications required by companies and the level of integration between these applications.

What follows is coverage segmented by technology category with comments also on a given category's market coverage, where appropriate.

There were very few proposals (with the exception of Microsystems – see Annex 4) covering accompanying measures (Technology Category 1).

In the case of Optimisation Technologies there was average market coverage with a focus on transportation and manufacturing. It is clear that this technology has considerable application in other markets such as network and services operators. Future calls should consider proposals addressing these market areas.

Software Engineering featured more than 60 proposals and as such had broad market coverage, but with some focuses on services, media and education. Likewise, the large number of proposals meant that most technology issues in this area were addressed. Simulation, a sub-set of this technology category, features many proposals that have few apparent synergies. Furthermore, coverage across applications and market categories is sparse.

The number of proposals in production and manufacturing is very low. Given the importance of this category to many sectors of European industry future calls should consider more proposals in this areas. However, there are a few (three or four) proposals in the technology category Knowledge Engineering which address some specific industrial areas such as machinery, shipbuilding and construction.

The technology category Knowledge Engineering and Management provides a wide coverage of markets with some emphasis on services and education (50% of all proposals in this technology area). There is a strong correlation between the Action Lines covering this category and the coverage of the proposals within it. Due to the large number of proposals in this category, a technology breakdown has been performed. See introduction for details of this.

The market coverage of Security technologies was surprising. Although there were 22 proposals, apart from an obvious focus on media/advertising, there was a lack of proposals in important areas such as banking, retail and health care. The Group speculated that this focus could also reflect a lack of real-end users (who could be considered an important driver for promoting sub issues such as standardisation, open applications and interconnectivity). The major driver in this market/technology sector is the defence industry.

The technology category Agent/Middleware also comprises proposals related to interoperability. The Group believes that a major problem in this category has been a lack of end-user involvement – crucial if a project is going to produce, for example, a useable agent.. Furthermore, “Middleware” needs to have applications connected to it. It believes that there is an opportunity for synergy between proposals in this technology category and other categories that are developing end user applications and service platforms. One positive aspect of this technology sector is that it has excellent market coverage. Finally, in future calls there need to seek more projects addressing standardisation issues, which, in this technology sector, are crucial.

Technologies for Generic Applications are spread across all market areas. It is not clear that there are sufficient independent end users to validate the output of these proposals.

In the area of Services Platforms and Facilities Technology there was a strong emphasis on services, media and an interesting number of applications related to health care network and service operators. However, there needs to be more proposals relating to personal services in future calls.

Finally, category 10, Human Interfacing, which includes Virtual Reality covered most relevant market, sectors with a special emphasis on services, retail and media. The technologies used provide good coverage in the area of input technologies such as visual/speech/gesture/human measurement. These complement areas with outputs in corresponding end user areas. There are strong developments in pattern recognition and difficult operating environments (e.g. noisy). Furthermore, there is good integration with virtual reality and other data interfacing systems.

## **A6.3 Analysis of Strengths Weaknesses Opportunities & Threats (SWOT)**

### **A6.3.1 Strengths**

As a general comment, there are important functional building blocks within all the main technology categories. Most of the blocks feature proposals, which provide good coverage in their respective technology area. Properly assembled these blocks will form a good foundation on which to develop a homogenous service platform

Work to be undertaken by proposals in the area of agent and middleware, such as Applicative Bus, combined with proposals in different application areas, such as energy production and transmission, will provide Europe with key integrated applications such as intelligent and integrated business systems. These specific applications will become more important as European energy markets deregulate.

Within the category Human Interfacing, multi language issues are well addressed. This is complemented by the development of components in multimedia interfacing. In turn this makes end user IT products more accessible to a wider population.

### **A6.3.2 Weaknesses**

The Group believes that in the future, one of the key market areas for products and services will be the home. There are relatively few proposals in this area and this could have serious implications for European industry. Furthermore, the absence of user involvement in specific home environment networks is of major concern. It indicates that many projects at their termination will still be at the prototype stage in a fast moving and potentially maturing market. In addition, there are only a few proposals addressing the following categories:

- production and manufacturing,
- optimisation,
- security.

The competitiveness of many industry sectors is dependent on the output of research projects in these domains.

A number of proposals plan to contribute towards standards. To ensure a positive result in this area the Group felt that careful attention is paid during the course of a project's life that its good intentions are realised. The Group felt that it was worth emphasising the importance of timely standards in terms of European industry's competitiveness.

### **A6.3.3 Opportunities**

There is an explosion in the market for multi-media products, systems and services. European market demand is for culturally adaptable product and service offerings. This places a premium on

competences in the areas of human interfaces, virtual reality, interface technologies and software engineering. As shown in previous sections of this report, these are all areas that are well addressed by proposals within the current call .

The section covering strengths mentioned the importance of assembling functional building blocks to develop a homogenous service platform structure. This presents an important opportunity for European industry to take a lead in this area.

Currently the large European business services market sources many of its requirements in the US. There is not a corresponding counter-flow of goods and services from Europe. The Group believes that by a proper co-ordination of projects focused on business tools, it should be possible to generate critical mass. In turn this will increase the likelihood of products and services being exported to other countries and regions.

### **A6..3.4 Threats**

Several technology areas and cross technology areas are time sensitive. The failure of projects to deliver results and or products in the right time frame could be commercially disastrous. These comments apply particularly to e-commerce (cross technology). In these areas companies in other regions are very active.

As already mentioned, it is important that projects in the technology category service platforms communicate with each other. This will produce a more positive result in the area of networks. However, failure to do so can be considered as a threat since critical mass and hence market penetration may not be achieved.

## **A6..4 Multi-criteria analysis**

### **A6..4.1 Category to Key Action Correspondence**

Table A5.4 below shows the range of technologies addressed by each Action Line or Area studied by the Group. The table demonstrates conclusively that proposals in most Action Lines span several technology categories. This means that a serious effort needs to be made to ensure that proposals in common technology areas (such as security) but different Action Line areas are made aware of each other's existence and activities. Specific links, synergies and dependencies are covered in greater detail in Section A6..7 which addresses this issue..

<b>Technology Category</b>	<b>Total</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>Area / Action Line</b>										
CPA 1	5		1			1		1	1	1
CPA3	3	1								2
FET Open	1			1						
FET P2	8	1		2	1		3			1
FET SM	2	1				1				
IMS	2			1				1		
INCO	7	7								
KA II 1	3			3						
KAI.2 Health RTD	14			3	1			3	6	1
KAI.2 Health SM	2							2		
KAI.3 Elderly & Disabled	2		1			1				
KAI.4 Admin RTD	8	2		3			1		1	1
KAI.5 Environment	16	1		1	3	2	1	6	2	
KAI.6 Transport	15	2	7	1	1		3		1	
KAI.6 Transport SM	5	2	1					1	1	
KAI.2 AREA 2 (AM)	2	1							1	
KAI.2 SM	7	5				1			1	
KAI.1 RTD Spanning	38	1	1	2	27			5	1	1
KAI.2 Work Methods & tools	31	2		6	6	1	3	1	6	6

KAIL.3 Management Sys.	31			2	3		8	4	2	12
KAIL.4.1 Security	6					5			1	
KAIL.4.2 Security	6					3	1			2
KAIL.4.3 Security	5					4				1
KAIIL Support Measures	1	1								
KAIIL.2 Flexible Universities	6	1			2		1		1	1
KAIIL.2.1 AV Production & Publishing	12			5	1			1	1	4
KAIIL.2.1 AV P&P SM	1	1								
KAIIL.2.2 Personalisation	8			1	1		1	1	4	
KAIIL.2.2 Personalisation SM	1	1								
KAIIL.2.3 Cultural Heritage	6			1						5
KAIIL.2.4 Digital Libraries	6			2				1	1	2
KAIIL.2.4 Digital Libraries SM	2	2								
KAIIL.3.1 Personalised Learning	14	3		7	1				2	1
KAIIL.3.3 Education & Training	8			1	2			2	3	
KAIIL.4.1 Cross Lingual	2			1					1	
KAIIL.4.2 Networked Services	2			1						1
KAIIL.4.3 Translation	2			1					1	
KAIIL.4.4 Speech Technologies	6	1	1					1	2	1
KAIIL.4.5 Support Measures	12	9		2						1
KAIIL.4.6 Multimodality	3									3
KAIIL.5 Info Access and Filtering	1	1								
KAIV Support Measures	3	1			1			1		
KAIV. Nwk Management & IS	8		1	1		2	2		2	
KAIV.2 Communications & Networks	11		1	2	1		3	1	2	1
KAIV.3.1 Software Engineering	3		1				2			
KAIV.3.3-4 S/W Methods & Info Man	10		1	2	5		1		1	
KAIV.4.1	7			6						1
KAIV.4.2	10							1	3	6
KAIV.4.3	4			1		1			1	1
KAIV.5 Mobile & Personal Coms	5			1				1	3	
KAIV.7.2 Subsystems	3			2				1		
KAIV.8.1-2 Microelectronics & appls	3			1	1			1		

Table A5.4 : Technologies addressed by each Action Line or Area

#### A6..4.2 Category to Market Correspondence

Table A5.5 shown below covers all technology categories and markets addressed by the Group. Most proposals are clustered in the market categories 1 to 9 of Table A5.3), The large number of proposals (70) is under the market category "Services".

Technology			1	2	3	5	6	7	8	9	10
Category No	Market Category	Total									
	Non Categorised Proposals	70	5		14		4	1	8	8	6
1	Administration/Non-profit/Public Sector/EU-Support	33	21		2	3		1	1	3	2
2	Software Market	23		1	7	5	1	5		1	2
3	Finance and Banking	18	1		2	3	4	3	1		2
4	Production and Manufacturing	22		3	2	5			2	3	3
5	Retail / Consumer Markets	21	2			1	1	5	3	1	6
6	Services	70	4		11	19	3	6	4	7	11
7	Healthcare (inc. Elderly and Disabled)	32	1	1	4	3	1		3	7	2
8	Media and Advertising	58	2	1	8	2	7	1	2	10	9
9	Education and Awareness	24	3		2	10			2	1	2
10	Electronic Industry		2		2	2			1	1	

11	Network and Service Operators		2					2	1	4	2
12	Telecom Manufactures		1	2	2	3	1	1			4
13	Emergency Services								1	2	
14	Auto-industry, Manufacture and Users			2	5			4	2	1	1
15	Non Telecom Service Providers			2	1	1		1	4	2	1
16	Transport Service Providers		2	4	1	1			1	1	
17	Longer Term Support Projects		2								3

Table A5.5 Technology Categories and Markets

## A6..5 Risk Profiles

Tech' Code	Category Description	Risk – Technology & Market
1	Value/Support/Accompanying Measures	A significant number of projects may fail due to an inability to provide properly focused products for the correct group of end users
2	Technologies of Optimisation	A key market success factor in this technology area is the proper testing and validation of products and their delivery of the correct amount of optimised functionality. Projects that fail to address these issues may not succeed.
3	Software Engineering	The greatest technology risk in this sector is that project results do not meet end-user requirements/expectations. Portability between platforms is another key issue. Also extendability, can the results of a project evolve to accommodate changing user needs? Reusability, a key issue needs to be better addressed through the use of Object oriented technologies.
5	Knowledge Engineering and Management	Technology risk in this case relates to the difficulty in encapsulating expert knowledge. Some application areas may be more difficult and hence have a higher risk than others. For example, medical knowledge is high risk due to the difficulty/sensitivity when encapsulating this knowledge. Furthermore, there is a user risk, access to medical expert systems by non-experts could be dangerous.
6	Security Technologies	Risk in this case, relates to the testing and testability of key elements within secure systems. Scope of testing is also important and needs to extend to peripheral as well as core elements
7	Agent/Middleware Technologies	This category features rapidly evolving standards and hence technology. However, these technologies (e.g. CORBA) have limitations. The Group felt a significant number of proposals in this category were either unaware of such limitations or did not take them into account when formulating their proposals.
8	Technologies for Generic Applications	Many applications which claim to be generic are not. This has a risk implication since they may not succeed. e.g. real time app which uses a specific language such as ADA is not generic
9	Service Platforms and Facilities Technology	Risk relates to the requirement, by users, for the delivery of results/products in a short time frame. In addition. Projects also need to address the requirement for prototypes and mock-ups. Finally more projects need to conduct multi-users testing to ensure that projects deliver useful output.
10	Human Interfacing inc. Virtual Reality	The psychological aspects of systems in this category are very important. Several proposals fail to address these issues and as such have a higher risk of failing to produce useable results. Similar comments apply to the issue of ergonomics.

Table A5.6 : Risk Profiles



## **A6..6 Participants**

One of the main concerns is the participation of end-users. An extensive “reality check” was undertaken to see if general user needs are covered. Future calls should continue to stress the importance of user participation in projects.

The participation of SMEs was viewed with some concern. In general participation was good. However, the Group felt that participation in further calls could be encouraged by better communication of programme contents and perhaps assistance to SMEs when developing proposals.

## **A6..7 Links Identified by the analysis**

### **A6..7.1 *Strategy links***

#### **A6..7.1.1 Strategic Evaluation**

During evaluation, of are ranked according to scores against established criteria. Here, we propose an additional remit for the Evaluation panel (probably a particular member) to maintain a strategy watch (based on separate strategic criteria) of the proposals. The output should be to capture proposals with strategic potential irrespective of the panel ranking. These could then be separately evaluated against some strategic criteria. The negotiation process could serve to strengthen e.g. the consortium, the outputs, and the associations, which are needed to deliver strategic results.

E.g. there are two excellent proposals in KAI.2 which could achieve important strategic results with some strengthening of consortium and focussing of objectives. In their current formats they are unlikely to do this. How many others may have been missed.??

#### **A6..7.1.2 Transparent Environment Link (Type 7)**

The analysis indicated a broad level of commonality in the area of service platforms and user interfaces. Links have been identified here at joint action and info sharing level. Similar links have identified within networks and the telecommunications aspects.

The combination of these reveals a broader indicative link covering the « Seamless Environment » which represents the overall infrastructure available to end-users. This is clear from the study that a key contribution for IST is to provide this. Our analysis indicates that currently, this need is only seen from top down. If this view is inverted a very different picture emerges. The end-user is expecting a transparent environment. This is a fundamental tenet of the Information Society concept. IST as one of the largest research programmes has a unique opportunity to contribute to this by making it one of its key success criteria within the integrated programme.

Description	IST KA	Proposals	Tech	Links
Proposals contributing to a transparent environment	CPA 1	11967	2	Indicative PIM infosharing link, perhaps with some proximity links
	KAI.6 Transport	10700	2	
	KAI.2.2 Person. and Content Man	10602	3	
	FET Open	10466	3	
	KAI.2 Comm. & Networks	10118	3	
	KAI.2 Work methods & tools	10319	3	
	KAI.2 Work methods & tools	10319	3	
	KAI.1 RTD Spanning	12685	5	
	KAI.2 Work methods & tools	11567	5	
	KAI.2 Comm. & Networks	10258	5	
	KAI.3.1 Software Engineering	11631	7	
	KAI.3.1 Software Engineering	11708	7	
	KAI.4 Admin RTD	12115	9	
	KAI.2.2 Person. and Content Man	13479	9	
	KAI.1 RTD Spanning	11746	9	
	KAI.2 Comm. & Networks	10302	9	
	KAI.5 Mobile & Personal Coms	12070	18	
	KAI.2 Comm. & Networks	10622	21	
	KAI.2 Comm. & Networks	13313	21	

Table A5.7 Proposals contributing to a transparent environment

**A6..7.1.3 Technology Support Link (Type 7)**

The analysis shows a number of vertical links down the IST programme and this indicates they there should be links into other programmes.

e.g. the vertical link across KAI.3 to other IST programmes leads to a view that IST could investigate how it can provide strategic and factual technology support to the Quality of Life Programme which could provide strong bi-directional value.

**A6..7.1.4 Strategic Link (Infrastructure) (Type 7)**

Analysis indicates strong indicative links among the key components of infrastructure (e.g. service platforms, interoperability, and networks). There are many proposals going to work in these key component areas across different markets. There is an opportunity for IST to take a proactive stance in developing commonality within and across these links, as part of the drive towards a transparent environment. This would be a clear indication of the integrated nature of the programme.

**A6..7.1.5 Links identified by Market – Technology Overlap**

The following section examines the dependencies between different technologies in a given market category (see Introduction for a listing of the market categories). Each of the headings that follow refers to a particular market category. The tables contain information that details the links between proposals in that category, the relevant Action Line and the nature of the link.

**Administration Information System**

Description	IST KA	Proposals	Tech	Links
Proposals related to Administration Information Exchange	KAI.2 / KAI.5	10602 12245	3	PIM dependency link
Provide information and results to :				
Proposals related to Administration Information System	KAI.5 / KAI.5	11406 12115	8	

Table A5.8: Administration Information System

### European IPR Security

Description	IST KA	Proposals	Tech	Links
European IPR Security Systems	KAIL.2 KAIL.4 KAIV KAIII.2	10871 10987 12585 10165	5	PIM infosharing link

Table A5.9 : European IPR Security

### Personalised Radio

Description	IST KA	Proposals	Tech	Links
Personalised Radio Systems	KAIL.4 KAIII.2	11457 12116	9	PIM infosharing link

Table A5.10 : Personalised Radio

### Automobile Industry and Logistics

Description	IST KA	Proposals	Tech	Links
Inside Car Communication	KAI.6 KAIV.8 KAIV.7	11595 12257 10333	3	PIM infosharing link
Optimisation of Logistics	KAIV.3 KAI.5	11969 11598	2	PIM infosharing link

Table A5.11 : Automobile Industry and Logistics

### Industrial management

Description	IST KA	Proposals	Tech	Links
Knowledge management in industry	KAIL.1 RTD Spanning KAIL.1 RTD Spanning KAIL.1 RTD Spanning	10442 11355 11961	5	Indicative PIM proximity link

Table A5.12 : Industrial management

### Knowledge Based Engineering (KBS) vs Service Oriented Market Segments

There were many proposals covering KBS, Shown below is a table which matches proposals lying in a given KBS sub-category with various market categories. Proposals lying in the same "box" have both technology and market links that should be explored further.

Technology sub-category → Market segment	KBS for real time applications	Documentat ion KBS	Design, manufacturing and maintenance	Corporate knowledge management system	Collaborative engineering	Specific proposals
Engineering tools			11355 11961	10442	12259	
Collaborative working tools				11256	11256	
Corporate information management		12645 12504 11993		11993 10934	11061	

Business process development				10091 10768 10878	10768 10878 11696	10181 10193 11372
Marketing/brokering/logistic tools						
Human resource management						
Education and awareness		11495 10918	10712	1634 11747 12181		10918 13079

Table A5.13 Knowledge Based Engineering (KBS) vs Service Oriented Market Segments

### A6..7.2 Key Market Links

Each of the headings in this section covers a particular market category or its sub-category. For a complete list of market categories or sub-categories please consult Table A5.3 in the Introduction to this Annex.

#### A6..7.2.1 Collaborative Working: PIM proximity links and dependencies

Within the service market is the collaborative working environment segment, where a number of proposals are addressing different technologies, primarily from KAIL.2. Where the technology classification is identical, this generally indicates a group of proposals where a closer co-operation would be beneficial Eg to speed development, harmonise platforms or bring critical mass to resulting products. An exception is in the human interface and virtual reality technology segment where differing objectives would probable not benefit from such linking.

Proposals within the “collaborative working environment” segment share technologies and may form dependency links :

- Human interface to agent/middleware
- Agent/middleware to service platform
- Service platform to network management

While other technology areas within this market segment do not appear to have clear dependencies, all proposals would benefit from an information exchange (Table A5.14).

Description	IST KA	Proposals	Tech	Links
Proposals related to collaborative working tools	KAIL.2 Work methods & tools	11027	3	PIM infosharing link
	KAIL.1 RTD Spanning	11256	5	
	KAIL.2 Work methods & tools	11400	7	
	KAIL.1 RTD Spanning	11746	9	
	KAI.3 Elderly and Disabled	10500	10	
	KAIL.2 Work methods & tools	10491	10	
	KAIL.2 Work methods & tools	10846	10	

Table A5.14: Awareness Grouping of proposals addressing Collaborative Working.

**Collaborative Working: Specific links and dependencies**

Description	IST KA	Proposals	Tech	Links
Proposals related to software development for collaborative working tools	KAII.2 Work methods & tools	11027	3	PIM proximity link
Proposals related to knowledge base and management systems for collaborative working tools	KAII.1 RTD Spanning	11256	5	
Proposals related to service platforms for collaborative working tools	KAII.1 RTD Spanning	11746	9	

Table A5.15: Collaborative working - Proximity Links

Description	IST KA	Proposals	Tech	Links
Proposals related to knowledge base and management systems for collaborative working tools	KAII.1 RTD Spanning	11256	5	Indicative PIM dependency link
Provide/receive information and results to/from :				
Proposals related to agents/interfaces for collaborative working tools	KAII.2 Work methods & tools	11400	7	

Table A5.16: Collaborative working – Indicative Dependency Links

Description	IST KA	Proposals	Tech	Links
Proposals related to service platforms for collaborative working tools	KAI.1 RTD Spanning	11746	9	Indicative PIM dependency link
Provide/receive information and results to/from :				
Proposals related to agents/interfaces for collaborative working tools	KAI.2 Work methods & tools	11400	7	

Table A5.17: Collaborative working – Indicative Dependency Links

Proposals related to human interface and virtual representation for collaborative working tools	KAI.3 Elderly and Disabled KAI.2 Work methods & tools KAI.2 Work methods & tools	10500 10491 10846	10	Indicative PIM dependency link
Provide/receive information and results to/from :				
Proposals related to agents/interfaces for collaborative working tools	KAI.2 Work methods & tools	11400	7	

Table A5.18: Collaborative working – Indicative Dependency Links

Proposals related to service platforms for collaborative working tools	KAI.1 RTD Spanning	11746	9	Indicative PIM dependency link
Provide/receive information and results to/from :				
Proposals related to network management for collaborative working tools	KAI.V. Nwk Management & IS		22	

Table A5.19: Collaborative working – Indicative Dependency Links

#### A6..7.2.2 Corporate information system PIM proximity links and dependencies

The next service market segment is that of corporate information management where a number of proposals are addressing different technologies, again primarily from KAI.2. Where the technology classification is identical, this generally indicates a group of proposals where a closer co-operation would be beneficial Eg to speed development, harmonise platforms or bring critical mass to resulting products.

Specific proposals cover the software engineering and generic software technology segments. Once again, those covering the human interface and virtual reality technology segments would probable not benefit from proximity linking.

Proposals within the Corporate Information System may form dependency links as follows:

- Human interface to knowledge base to security
- Knowledge base to service platform to security
- Software engineering to generic software

While other technology areas within this market segment do not appear to have clear dependencies, all proposals would benefit from an information exchange (Table A5.20).

Description	IST KA	Proposals	Tech	Links
Proposals related to technology for corporate information system	KAI.5 Environment	12245	3	PIM infosharing link
	KAI.1 RTD Spanning	10934	5	
	KAI.1 RTD Spanning	11061	5	
	KAI.3.3-4 S/W Methods&Info Man	11993	5	
	KAI.3.1 Personalised Learning	12503	5	
	KAI.1 RTD Spanning	12645	5	
	KAI.3 Management Systems	10392	8	
	KAI.3 Management Systems	10092	10	
	KAI.2.3 Cultural Heritage	12026	10	

Table A5.20: Awareness Grouping of proposals addressing Corporate Information Systems

### Corporate Information Systems: Specific links and dependencies

Description	IST KA	Proposals	Tech	Links
Proposals related to knowledge base and management systems for corporate information system	KAI.1 RTD Spanning	10934	5	PIM proximity link
	KAI.1 RTD Spanning	11061		
	KAI.3.3-4 S/W Methods&Info Man	11993		
	KAI.3.1 Personalised Learning	12503		
	KAI.1 RTD Spanning	12645		

Table A5.21: Corporate Information Systems - Proximity Links

Description	IST KA	Proposals	Tech	Links
Proposals related to software engineering for corporate information system	KAI.5 Environment	12245	3	Indicative PIM dependency link
Provide/receive information and results to/from :				
Proposals related to security technology for corporate information system	KAI.3 Management Systems	10392	8	

Table A5.22: Corporate Information Systems – Indicative Dependency Links

Description	IST KA	Proposals	Tech	Links
Proposals related to security technology for corporate information system	KAII.4.1 Security		6	Indicative PIM dependency link
Provide/receive information and results to/from :				
Proposals related to knowledge base and management systems for corporate information system	KAII.1 RTD Spanning KAII.1 RTD Spanning KAIV.3.3-4 S/W Methds&Inf. Man KAIII.3.1 Personalised Learning KAII.1 RTD Spanning	10934 11061 11993 12503 12645	5	

Table A5.23: Corporate Information Systems – Indicative Dependency Links

Description	IST KA	Proposals	Tech	Links
Proposals related to security technology for corporate information system	KAII.4.1 Security		6	Indicative PIM dependency link
Provide/receive information and results to/from :				
Proposals related to knowledge base and management systems for corporate information system	KAII.1 RTD Spanning KAII.1 RTD Spanning KAIV.3.3-4 S/W Mthds&Info Man KAIII.3.1 Personalised Learning KAII.1 RTD Spanning	10934 11061 11993 12503 12645	5	
Provide/receive information and results to/from :				
Proposals related to human interface and virtual representation for corporate information system	KAII.3 Management Systems KAIII.2.3 Cultural Heritage	10092 12026	10	

Table A5.24: Corporate Information Systems – Indicative Dependency Links

### A6..7.2.3 Business process development PIM proximity links and dependencies

The next service market segment is that of business process development where a number of proposals are addressing different technologies, again primarily from KAII.2. Where the technology classification is identical, this generally indicates a group of proposals where a closer co-operation would be beneficial Eg to speed development, harmonise platforms or bring critical mass to resulting products.

Proposals within the Business Process Development segment may form dependency links as follows:

- Knowledge base to agent/middleware

While other technology areas within this market segment do not appear to have clear dependencies, all proposals would benefit from an information exchange (Table A5.25).



Description	IST KA	Proposals	Tech	Links
Proposals related to business process development	KAIL.1 RTD Spanning	11926	1	Indicative PIM infosharing link
	KAIV.2 Comm. & Networks	10118	3	
	KAIL.1 RTD Spanning	10387	3	
	KAIL.1 RTD Spanning	10091	5	
	KAIL.1 RTD Spanning	10181	5	
	KAIL.1 RTD Spanning	10193	5	
	KAIL.1 RTD Spanning	10768	5	
	KAIL.1 RTD Spanning	10878	5	
	KAIL.2 Work methods & tools	11696	5	
	KAI.5 Environment	11372	5	
	KAIL.3 Management Systems	11570	7	

Table A5.25 Awareness Grouping of proposals addressing Business Process Development

**Business Process Development: Specific links and dependencies**

Description	IST KA	Proposals	Tech	Links
Proposals related to knowledge base and management systems for business process development	KAIL.1 RTD Spanning	10091	5	Indicative PIM proximity link
	KAIL.1 RTD Spanning	10181		
	KAIL.1 RTD Spanning	10193		
	KAIL.1 RTD Spanning	10768		
	KAIL.1 RTD Spanning	10878		
	KAIL.2 Work methods & tools	11696		
	KAI.5 Environment	11372		
Proposals related to software development for business process development	KAIV.2 Comm. & Networks	10118	3	
	KAIL.1 RTD Spanning	10387		

Table A5.26: Business Process Development - Proximity Links

Description	IST KA	Proposals	Tech	Links
Proposals related to knowledge base and management systems for business process development	KAI1.1 RTD Spanning	10091	5	Indicative PIM dependency link
	KAI1.1 RTD Spanning	10181		
	KAI1.1 RTD Spanning	10193		
	KAI1.1 RTD Spanning	10768		
	KAI1.1 RTD Spanning	10878		
	KAI1.2 Work methods & tools	11696		
	KAI.5 Environment	11372		
Provide/receive information and results to/from :				
Proposals related to agents/interfaces for business process development	KAI1.3 Management Systems	11570	7	

Table A5.27: Business Process Development – Indicative Dependencies

#### **A6..7.2.4 Marketing/brokering/logistic tools PIM proximity links and dependencies**

The next service market segment is that of marketing/brokering/logistic tools where a number of proposals are addressing different technologies, primarily from KAII, but with more cross programme implication. Where the technology classification is identical, this generally indicates a group of proposals where a closer co-operation would be beneficial Eg to speed development, harmonise platforms or bring critical mass to resulting products.

Proposals within marketing/brokering/logistic tools may form dependency links as follows:

- Human interface to knowledge base
- Knowledge base to service platform
- Software engineering to generic software

While other technology areas within this market segment do not appear to have clear dependencies, all proposals would benefit from an information exchange (Table A5.27).

Description	IST KA	Proposals	Tech	Links
Proposals related to Marketing/brokering/logistic tools	KAII.2 Work methods & tools	10211	7	Indicative PIM infosharing link
	KAII.3 Management Systems	11060	7	
	KAIV.2 Comm. & Networks	10808	7	
	KAIII.2.1 A/V Prod. & Publishing	10281	8	
	KAII.1 RTD Spanning	11850	8	
	KAII.3 Management Systems	12192	8	
	KAIII.2.2 Pers. and Content Man	10288	9	
	KAII.3 Management Systems	10734	9	
	KAII.3 Management Systems	13347	10	
	KAII.3 Management Systems	10688	10	
	KAII.3 Management Systems	12061	10	
	KAII.3 Management Systems	12641	10	
	KAIII.4.4 Speech Technologies	11562	10	

Table A5.28 Awareness Grouping of proposals addressing Marketing / brokering / logistic tools

**Marketing / brokering / logistic tools : Specific links and dependencies**

Description	IST KA	Proposals	Tech	Links
Proposals related to agents/interfaces for Marketing/brokering/logistic tools	KaII.2 Work methods & tools KaII.3 Management Systems KaIV.2 Comm. & Networks	10211 11060 10808	7	Indicative PIM proximity link
Proposals related to generic applications for Marketing/brokering/logistic tools	KaIII.2.1 A/V Prod. & Publishing KaII.1 RTD Spanning KaII.3 Management Systems	10281 11850 12192	8	
Proposals related to service platforms for Marketing/brokering/logistic tools	KaIII.2.2 Pers. and Content Man KaII.3 Management Systems	10288 10734	9	
Proposals related to human interface and virtual representation for Marketing/brokering/logistic tools	KaII.3 Management Systems KaII.3 Management Systems KaII.3 Management Systems KaII.3 Management Systems KaIII.4.4 Speech Technologies	13347 10688 12061 12641 11562	10	

Table A5.29: Marketing / brokering / logistic tools – Indicative Proximity Links

Description	IST KA	Proposals	Tech	Links
Proposals related to software engineering for Marketing/ brokering/logistic tools	KaII.1 RTD Spanning		3	Indicative PIM dependency link
Provide/receive information and results to/from :				
Proposals related to generic applications for Marketing/ brokering/logistic tools	KaIII.2.1 A/V Prod. & Publishing KaII.1 RTD Spanning KaII.3 Management Systems	10281 11850 12192	8	

Table A5.30: Marketing / brokering / logistic tools – Indicative Dependency Links

Description	IST KA	Proposals	Tech	Links
Proposals related to human interface and virtual representation for Marketing/brokering/logistic tools	KaII.3 Management Systems KaII.3 Management Systems KaII.3 Management Systems KaII.3 Management Systems KaIII.4.4 Speech Technologies	13347 10688 12061 12641 11562	10	Indicative PIM dependency link
Provide/receive information and results to/from :				
Proposals related to agents/interfaces for Marketing/brokering/logistic tools	KaII.2 Work methods & tools KaII.3 Management Systems KaIV.2 Comm. & Networks	10211 11060 10808	7	

Table A5.31: Marketing / brokering / logistic tools – Indicative Dependency Links

Description	IST KA	Proposals	Tec h	Links
Proposals related to service platforms for Marketing/brokering/ logistic tools	KAIII.2.2 Pers. and Content Man KAII.3 Management Systems	10288 10734	9	Indicative PIM dependency link
Provide/receive information and results to/from :				
Proposals related to agents/interfaces for Marketing/brokering/ logistic tools	KAII.2 Work methods & tools KAII.3 Management Systems KAIV.2 Comm. & Networks	10211 11060 10808	7	

Table A5.32: Marketing / brokering / logistic tools – Indicative Dependency Links

#### A6..7.2.5 General Comments on Service Category

There was only one proposal within Human Resource Management Tools and could have links with proposals in other areas. In any case, all the above proposals should have some level of information sharing.

#### A6..7.2.6 Key Technology Links

The following sections consider the nature of links between proposals in a given technology category and their categorisation by Action Line. This has enabled the Group to identify synergies between proposals located in different Actions Lines but addressing or using similar technologies. Each of the sub-headings that follow refers to a particular technology category or sub-category. A complete list of these categories can be obtained from Table A5.2 located in the Introduction to this Annex.

#### A6..7.2.7 Service platforms

These 15 proposals were identified by their focus on systems and standards. Clearly, co-operation between the different proposals is required to generate a global open platform.

Description	IST KA	Proposals	Tech	Links
Proposals related to service platforms	KAI.4 Admin RTD	12115	9	Indicative PIM infosharing link
	KAI.6 Transport	12201		
	KAIII.2.2 Person. and Content Man	13479		
	KAII.1 RTD Spanning	11746		
	KAII.4.1 Security	12040		
	KAIII.2.2 Person. and Content Man	11345		
	KAIII.2.4 Digital Libraries	11994		
	KAIV.2 Comm. & Networks	12078		
	KAIII.2 Flexible Universities	12550		
	KAIV.2 Comm. & Networks	10302		
	KAIV.5 Mobile & Personal Coms	13046		
	KAI.2 Health RTD	12175		

Table A5.33: Service Platforms

### A6..7.2.8 Human Interface technology with virtual reality

A full analysis was made for basic input and human representation technology :

Description	IST KA	Proposals	Tech	Links
Proposals related to visual input and recognition	KAI.4.2 Security	11587	6	PIM proximity link
	KAI.2 Health RTD	10310	10	
	KAI.2.1 A/V Prod. & Publishing	10443	10	
	KAI.3 Elderly and Disabled	10500	10	
	KAI.2 Comm. & Networks	10087	10	
Proposals related to general human interfaces	KAI.2	10036	8	
	KAI.2	11683	10	
Proposals related to speech interface	KAI.4.6 Multimodality	11103	10	
	KAI.4.4 Speech Technologies	11562		
	KAI.3.1 Education & Training	10003		
	KAI.4.5 RTD - Horizontal Issues	10003		
	KAI.4.2 Networked Services	11748		
Proposals related to visual representation	KAI.3 Management Systems	11078	8	
	KAI.3 Management Systems	10549	10	

Table A5.34: Human Interface with Virtual Reality : Proximity Links

The proposals could form a more general information sharing link for general harmonisation of the interface technology.

Description	IST KA	Proposals	Tech	Links
Proposals related to basic input and human representation technology	KAI.4.6 Multimodality	11883	10	PIM infosharing link
	KAI.4.2 Security	11587	6	
	KAI.2 Health RTD	10310	10	
	KAI.2.1 A/V Prod. & Publishing	10443	10	
	KAI.3 Elderly and Disabled	10500	10	
	KAIV.2 Comm. & Networks	10087	10	
	KAIV.2	10036	10	
	KAIV.2	11683	10	
	KAI.4.6 Multimodality	11103	10	
	KAI.4.4 Speech Technologies	11562	10	
	KAI.3.1 Education & Training	10003	10	
	KAI.4.5 RTD - Horizontal Issues	10003	10	
	KAI.4.2 Networked Services	11748	10	
	KAI.3 Management Systems	11078	8	
	KAI.3 Management Systems	10549	10	

Table A5.35: Harmonisation of the interface technology: Infosharing

Perhaps some interaction with virtual reality and “infosphere” development proposals could be interesting, and could be studied.

In the same technology category were other human interface technologies and virtual reality proposals :

Description	IST KA	Proposals	Tech	Links
Proposals related to general interface and data exchange	KAI.4 Admin RTD	10882	10	Not analysed, but probably diverse
	KAI.2.4 Digital Libraries	11791		
	KAI.4.2 Security	11531		
	KAI.3 Management Systems	10303		
	KAI.3 Management Systems	10375		
	KAI.4.6 Multimodality	10355		
	KAI.3 Management Systems	10092		
	KAI.3 Management Systems	10688		
	KAI.3 Management Systems	12061		
	KAI.3 Management Systems	13347		
	KAI.4.3 Security	11457		
	KAI.2 Flexible Universities	10253		
	KAI.2.2 Pers. and Content Man.	10288		
	CPA3	11577		
Proposals related to virtual reality	FET P2	10948	10	
	KAI.2 Work methods & tools	10202		
	KAI.2 Work methods & tools	13365		
	KAI.3 Management Systems	12361		
	KAI.2 Work methods & tools	10491		
	KAI.2 Work methods & tools	10846		
	KAI.3 Management Systems	12641		
	KAI.2.3 Cultural Heritage	12026		
	KAI.2.3 Cultural Heritage	12026		
	KAI.3 Management Systems	12277		
	KAI.2.3 Cultural Heritage	12163		
	KAI.2.4 Digital Libraries	11978		
	KAI.2.1 A/V Prod. & Publishing	11556		
	KAI.2.3 Cultural Heritage	11306		
	KAI.2.3 Cultural Heritage	12643		
	KAI.2.1 A/V Prod. & Publishing	11090		
	KAI.2.3 Cultural Heritage	10859		
	KAI.3 Management Systems	11305		

Table A5.36: Human Interface with Virtual Reality : Not Analysed

Further analysis is recommended for the segments related to general interface and data exchange, and to virtual reality.

**A6..7.2.9 Agent/interface technology**

Description	IST KA	Proposals	Tech	Links
Proposals related to CORBA	KAIV.2 Communications & Networks KAIV.3.1 Software Engineering	11131, 11708	7	Indicative PIM proximity link
Proposals related to agent/mediation	KAIL.3 Management Systems FET P2 KAIL.2 Work methods & tools KAIL.2 Work methods & tools KAIV.3.3-4 S/W Mthds&Inf Man KAIL.3 Management Systems KAIL.3 Management Systems KAIL.3 Management Systems KAIL.3 Management Systems	10390, 12679, 11400, 10211, , 12030, 11038, 10130, 11073, 11570	7	Not analysed, probably good links
Proposals related to other interfacing	KAIL.2 Work methods & tools KAIV. Nwk Management & IS KAI.5 Environment KAIL.4.2 Security KAIV.3.1 Software Engineering KAIII.2 Flexible Universities FET P2 KAIL.3 Management Systems KAIL.3 Management Systems KAIV.2 Comm. & Networks KAIV. Nwk Management & IS KAIV.2 Comm. & Networks KAI.6 Transport KAI.6 Transport KAI.6 Transport KAIII.2.2 Person. And Content Man	10478, 10825, 11244, 12619, 11631, 10737, 10298, 10710, 11060, 10808, 10684, 12504, 10448, 11138, 12224, 13123	7	Not analysed, but probably diverse

Table A5.37: Agent / Interface Technology

Interesting links are expected in the agent, special agent, and specific middleware segments.

**A6..7.2.10 Security technologies.**

Description	IST KA	Proposals	Tech	Links
Proposals related to smart card security	KAI.5 Environment KAII.4.2 Security CPA 1	12615 12615 12252	7	Indicative PIM proximity link
Proposals related to other security	KAII.4.2 Security KAII.4.1 Security KAII.4.3 Security KAII.2 Work methods & tools KAII.4.3 Security KAII.4.1 Security	11587 12324 10871 10871 10987 12554		Not analysed

Table A5.38: Security Technology

**A6..7.3 Other Key Technologies :**

This section looks at commonalities between proposals that fall outside of technology categorisation defined by the Group. Examples of this include smart cards, real time technologies and e-commerce. These products or systems are addressed by proposals which cross both Technology Category and Action Line classification.

**A6..7.3.1 Real time technologies**

The total number of proposals found to be tackling real time applications is 19. These proposals are of varying objectives and work content.

However, there are two dependency links. In the second case, please note that the groups providing the results are not linked, as with the groups receiving the results.

The overall group dealing with real time applications would benefit from exchanging information as the overall applications often have real time components that are domain independent. Further, this would encourage open solutions.

Description	IST KA	Proposals	Tech	Links
Proposals related to real time technology	KAIV.3.1 Software Engineering CPA 1 KAI.2 Health RTD KAIII.2.3 Cultural Heritage KAIV.2 Comm. & Networks KAII.2 Work methods & tools KAI.5 Environment KAI.2 Health RTD KAIV.2 Comm. & Networks KAII.1 RTD Spanning CPA3 KAI.6 Transport KAIV.2 Comm. & Networks	10069 11967 10515 10954 10258 10478 11244 10100 11557 11780 11577 13036 10043	2 2 3 3 5 7 7 8 8 8 10 22 25	PIM infosharing link

Table A5.39: Awareness Grouping of proposals addressing Real Time Technologies



**Real Time Technologies: Specific links and dependencies**

Description	IST KA	Proposals	Tech	Links
Proposals related to real time telecom systems	KAIV.2 Communications & Networks	11557	8	PIM dependency link
Provide information and results to :				
Proposals related to real time media controlling	CPA 1	11967	2	

Table A5.40: Real Time Technologies: Dependency Links

Description	IST KA	Proposals	Tech	Links
Proposals related to real time work methods	KAI.2 Work methods & tools		9	PIM dependency link
Provide information and results to :				
Proposals related to real time network in organisations	KAI.1 RTD Spanning	11780	2	

Table A5.41: Real Time Technologies: Dependency Links

**A6..7.3.2 Smart card technology :**

Description	IST KA	Proposals	Tech	Links
Proposals related to security technologies	CPA 1	12252	6	PIM dependency link
Provides/receives information and results to/from :				
Proposals related to agent/middleware technologies	KAI.4.2 Security KAI.3 Management Systems	12619 10130	7	

Table A5.42: Smart Card Technologies: Dependency Links

New hardware, security and agent/middle technologies would definitely benefit from sharing information, particularly through the supporting measure and specific infosharing.

Description	IST KA	Proposals	Tech	Links
Proposals related to	KAI.5 Environment	12615	6	Indicative PIM infosharing link
	KAI.4.2 Security	12615	6	
	CPA 1	12252	6	
	KAI.4.2 Security	12619	7	
	KAI.3 Management Systems	10130	7	
	KAI.7.2 Subsystems	12288	25	
	KAI.7.2 Subsystems	10205	26	

Table A5.43: Smart Card Technologies: Indicative scope for Information Sharing

### A6.7.3.3 E-Commerce

Description	IST KA	Proposals	Tech	Links
Proposals related to generic applications	KAI.1 RTD Spanning	10625	8	Indicative PIM proximity link
	KAI.2.1 A/V Prod. & Publishing	10281	8	
	KAI.1 RTD Spanning	11153	8	
Proposals related to e-commerce	CPA 1	11967	2	Requires further study
	KAI.4.1 Security	11159	6	
	KAI.3 Management Systems	10130	7	
	KAI.2 Work methods & tools	10478	7	
	KAI.1 RTD Spanning	10625	8	
	KAI.2.1 A/V Prod. & Publishing	10281	8	
	KAI.1 RTD Spanning	11153	8	
	KAI.3 Management Systems	11247	9	
	KAI.3 Management Systems	10303	10	
	KAI.3 Management Systems	10375	10	
	KAI.3 Management Systems	12361	10	
	KAI.3 Management Systems	12061	10	
	KAI.3 Management Systems	13347	10	
	KAI.4.4 Speech Technologies	11562	10	
	KAI.3 Management Systems	12277	10	
	KAI.3 Management Systems	10549	10	

Table A5.44: Electronic Commerce links

Further study should reveal dependencies and need for specific infosharing links, particularly in the security and global interface technologies (Human, agent/middleware).

**A6..7.3.4 Other key issues :**

This section considers the relationships between proposals that address specific user groups such as “home” users or SMEs. It also looks at other areas such as language and audio visual. Proposals in these areas have been identified by key word searches. The aim is to identify out of category proposals that could benefit from information sharing, or where one proposal's results might be of use/benefit to another proposal.

**The Home**

Description	IST KA	Proposals	Tech	Links
Proposals related to home network systems	KAIV. Nwk Management & IS	10825	7	PIM proximity link
	KAIV.2 Comm. & Networks	10622	21	
	KAIV.2 Comm. & Networks	13313	21	
Proposals related to home global home environment	KAI.4.2 Security	11587	6	PIM infosharing link
	KAI.2 Health RTD	13352	9	
	CPA 1	12295	9	
	KAI.4 Admin RTD	10882	10	
	KAIV.5 Mobile & Personal Coms	12319	18	
	KAIV. Nwk Management & IS	10825	7	
	KAIV.2 Comm. & Networks	10622	21	
	KAIV.2 Comm. & Networks	13313	21	
	KAIV.8.1-2 Microelectronics & apps	10358	21	
	KAIV.5 Mobile & Personal Coms	10167	22	

Table A5.45 The Home - links

A PIM proximity link shows a home network group that would benefit from co-operation, while all members of the above table form an information sharing link.

**SMEs**

Description	IST KA	Proposals	Tech	Links
Proposals related to technologies developing services for SMEs	KAI.3 Management Systems	10392	8	Indicative proximity link
	KAI.3 Management Systems	11570	7	
Proposals related to other technology for SMEs	KAI.3 Management Systems	11073	7	Not analysed, but probably diverse

Table A5.45 SMEs - links

There is an indicative link in technologies providing services to SMEs. The other technologies appear unrelated.

## Language

Description	IST KA	Proposals	Tech	Links
Proposals related to technology development	KAIII.4.1 Cross Lingual	12392	3	Not analysed
	KAIII.3.1 Personalised Learning	12021	3	
	KAIII.4.3 Translation	11407	3	
	KAIII.4.4 Speech Technologies	10667	8	
	KAIII.3.1 Personalised Learning	13093	3	
	KAI.3 Elderly and Disabled	10500	10	
	KAIII.4.6 Multimodality	11103	10	
	KAIII.3.1 Education & Training	10003	10	
	KAIII.4.2 Networked Services	11748	10	

Table A5.46 Language - links

There appears to be a good coverage of language technologies, but some integration of the hearing disabled language should be studied.

## Audio-Visual

Description	IST KA	Proposals	Tech	Links
Proposals related to	KAIII.4.4 Speech Technologies	10354	1	Further investigation required
	KAIIV. Nwk Management & IS	12585	3	
	KAIII.2.1 A/V Prod. & Publishing	10165	5	
	KAIII.2.2 Person. and Content Man	12203	8	
	KAIII.2.1 A/V Prod. & Publishing	12116	22	
	KAIII.2.3 Cultural Heritage	11306	10	
	KAI.3 Management Systems	11305	10	

Table A5.47 Audio Visual - links

## A6..8 General Recommendations

This analysis needs to be completed, and incorporated in the negotiators brief. Many of the detailed findings resulting from our analysis are relevant to preparation of the Second Call and the year 2000 Workprogramme for IST.

## A6..9 General Conclusions

The analysis provides a significant number of factual and strategic links, which relate to Key Issues. Not all of these have been pursued and further research is required to complete a full analysis in this area.

The main conclusion is that action is needed in the form of an ongoing support structure to continue this work. It is clear that proposals do not have any real strategic context and the negotiators will need to have input from an ongoing PIM study in order to optimise the eventual projects contracted, and to make allowances for resources needed to take advantage of links identified by the PIM study. The technologies and markets addressed by the Group are extremely complex and heterogeneous but the analysis data provides the first real opportunity to consolidate, focus and generate added value from the proposals.