

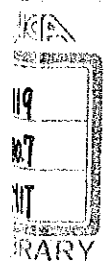
シンガポール国

日本・シンガポールA Iセンター協力事業

計画打合せ調査団報告書

平成5年7月

国



# シンガポール国

## 日本・シンガポールA Iセンター協力事業

### 計画打合せ調査団報告書

平成5年7月

国際協力事業団

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## 序 文

シンガポール国政府は、同国経済を生産性の高いかつ輸出志向型の国際競争力のあるものにしていくため、1981年大蔵省の傘下に「国家コンピューター庁 (National Computer Board = NCB)」を設置し、情報技術の総合開発・普及にあたらしめることとなった。そして、同分野の人材育成を図るため「コンピューター・マンパワー養成計画 (Computer Manpower Training Programme) を策定し、さらに1986年情報技術の戦略的フレームワークとして「国家情報技術計画」 (National IT Plan) を策定した。

その一環としてシンガポール国政府は、人工知能 (Artificial Intelligence = AI) のうち、「エキスパートシステムの普及」に資するため、1988年9月我が国にプロジェクト方式技術協力を要請してきた。

この要請を受けて我が国政府は、国際協力事業団 (JICA) を通じて1989年2月に事前調査団を派遣し、要請の背景、計画の妥当性、協力の規模等を調査し、その後さらに協力内容の詳細を詰めるための長期調査員の派遣を経て、1990年1月に実施協議調査団を派遣して討議議事録 (Record of Discussions) の署名を行なった。

本件プロジェクトは、同討議議事録に基づき、1990年4月1日から5年間にわたり技術協力を実施中である。プロジェクト開始後、約3年3ヶ月を経過した現時点において、JICAはプロジェクトの進捗状況の確認および今後のプロジェクト運営についてシンガポール側関係者と協議を行い、年次計画 (Annual Work Plan) を策定することを主な目的として、1993年7月13日から7月18日まで計画打合せ調査団を派遣した。

本報告書は同調査団の調査結果をとりまとめたものである。ここに本調査団の派遣に関し、ご協力いただいた日本・シンガポール両国の関係各位に対し深甚の謝意を表するとともに、あわせて今後のご支援をお願いする次第である。

1993年7月

国際協力協力事業団

鉱工業開発協力部長

柿沼 宇佐



写 真



協議議事録署名



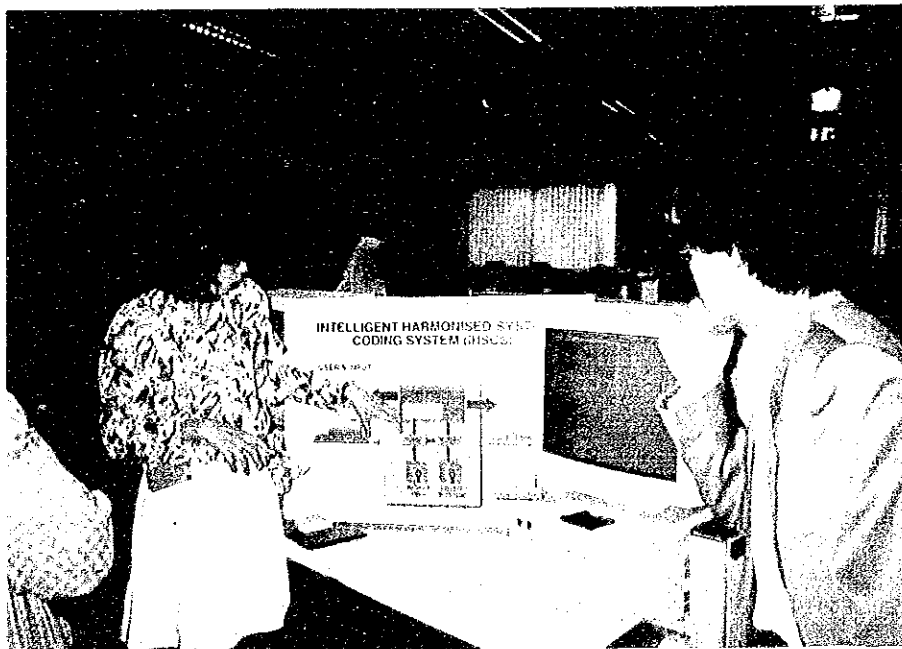
J S A I C と の 協 議







プロトタイプの実演

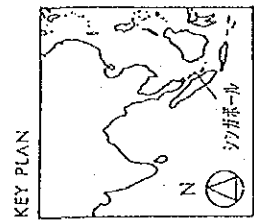
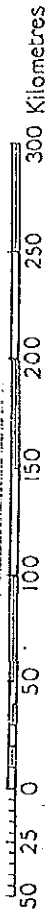
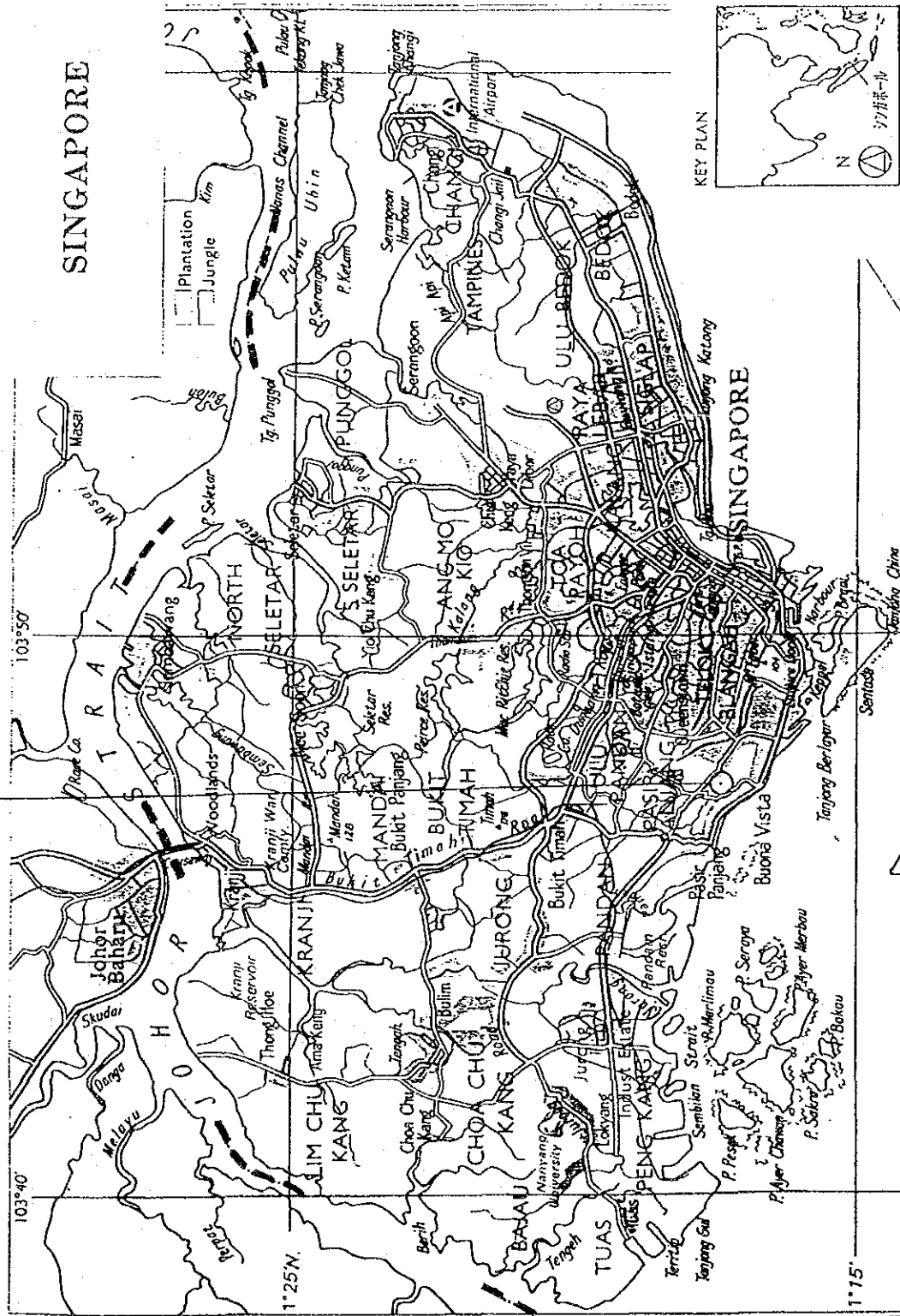




調査対象プロジェクト位置図

プロジェクトサイト

75 Science Park Drive Cntech II





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## 1. 調査結果の要約

1990年4月のプロジェクト協力開始後、現在までの約3年3ヶ月間に、長期派遣専門家10人及び短期派遣専門家39人の計49人を派遣し、12人の研修員を受け入れた。

専門家派遣及び研修員受け入れについては現在までのところ、各エキスパートシステム分野、最新AI技術分野等の技術移転、セミナー開催を実施し、概ね計画通り進展している。

また、機材供与に関しては現在までにワークステーション、マイクロコンピュータ等の機材を中心にC. I. F. で約536,000千円分を購送した。

一方、シンガポール国側の本プロジェクトに対する予算額および本プロジェクトの配置職員数は1992年度までの実績累計額として、約S\$5,500,000、1993年度17名（計画では20名）となっている。

本センターでの研修コースの運営については、企業参加しやすい環境作り、時間、コース内容等を現地に合うように創意工夫されており、ほぼ計画通りの進捗を見せている。

技術移転のうち、プログラムA及びプログラムCはマネージャークラス及び各業界専門家を対象とし、プログラムBはソフトウェアエンジニアを対象としているが、参加受講者数、実施回数とも予定通り実施されている。また、プログラムDにおいては、いくつかのプロトタイプシステムを作成、開発中であり、企業からの参加者も増えてきている。

日本での研修経験者を中心にしたカウンターパートへの技術移転も進み、専門家のサポートなしでインストラクターが勤まる等一定の成果も得られてきている。

今後はプロジェクトの後半に向け、急激な技術革新に伴う供与機材の旧型化・陳腐化への対応、成果物に対する知的所有権の取扱い、第3国研修実施の可能性等の懸案事項について、日本側・シンガポール側の双方で十分な検討が必要である。

## 2. 計画打合せ調査団派遣

### 2-1 調査団派遣の経緯と目的

「日本・シンガポールAIセンター」に対するプロジェクト方式技術協力要請は、1988年9月にシンガポール国政府から日本国政府に対して正式要請された。

この要請を受けて我が国政府は、国際協力事業団（JICA）を通じて1989年2月に事前調査団を派遣し、要請の背景、計画の妥当性、協力の規模等を調査し、その後さらに協力内容の詳細を詰めるための長期調査員の派遣を経て、1990年1月に実施協議調査団を派遣して討議議事録（Record of Discussions）の署名を行なった。

本件プロジェクトは、同討議議事録に基づき、1990年4月1日から5年間にわたる技術協力が開始され、1993年7月現在、長期、短期あわせて49人の専門家が派遣され技術協力中である。プロジェクト開始後、約3年3ヶ月を経過した現時点において、JICAはプロジェクトの進捗状況の確認および今後のプロジェクト運営についてシンガポール側関係者と協議を行い、年次計画（Annual Work Plan）を策定することを主な目的として、1993年7月13日から7月18日まで計画打合せ調査団を派遣した。

### 2-2 調査団の構成

担当分野	氏名	現職
団長 総括	石崎 俊	慶應義塾大学環境情報学部 教授
団員 技術協力計画	日下 保裕	通商産業省通商産業研究所政策情報システム部 企画係長
団員 情報処理	黒澤 兵夫	(財)国際情報化協力センター普及部 部長
団員 人工知能	杉本 潔	(財)国際情報化協力センター振興部専門職
団員 運営管理	佐々木 忠俊	国際協力事業団鉦工業開発協力部鉦工業開発協力課



## 2-3 調査日程

派遣期間 1993年7月13日～7月18日 (6日間)

日 程	調 査 内 容
7月13日(火)	移 動
7月14日(水)	JICA事務所打合せ、日本大使館・大蔵省国家コンピューター庁 (National Computer Board, Ministry of Finance, NCB)表敬 日本・シンガポールAIセンター(Japan Singapore AI Centre, JSAIC)表敬・協議
7月15日(木)	JSAIC との協議
7月16日(金)	JSAIC との協議、JICA事務所報告
7月17日(土)	M/D署名・捺印
7月18日(日)	移 動

## 2-4 主要面談者リスト

### (1) シンガポール国側

#### ① 大蔵省国家コンピューター庁

Mr. Ko Kheng Hwa      Chief Executive  
National Computer Board (NCB)

#### ② シンガポールAIセンター

Mr. Saw Ken Wye      Deputy Director  
Japan-Singapore AI Centre (JSAIC)

Mr. Chee Chean Wee    Manager, Application and Training  
Japan-Singapore AI Centre (JSAIC)

Mr. Teo Thiam Chye    Manager, Administration & Marketing  
Japan-Singapore AI Centre (JSAIC)

Miss Siew Yim Cheg    Knowledge Engineer  
Japan-Singapore AI Centre (JSAIC)

Mr. Teppei Kuroda     Chief Adviser  
Japan-Singapore AI Centre (JSAIC)

Miss Chieko Maruyama Coordinator

Japan-Singapore AI Centre (JSAIC)

(2) 日本側

①日本大使館

Mr. Jun Yokota	Minister
	Embassy of Japan
Mr. Heroya Tanigawa	First Secretary

②JICAシンガポール事務所

Mr. Touichi Iwata	Resident Representative
	JICA
Mr. Yukio Ishida	Asst. Resident Representative
	JICA
Mr. Shinichi Ishihara	Asst. Resident Representative
	JICA

### 3. 暫定実施計画 (T. S. I.) の進捗状況と次年度計画

#### 3-1 日本側

1990年4月1日に当プロジェクト方式技術協力事業が開始されてから本計画打合せ調査団派遣迄にほぼ3年3ヶ月が経過し、この間に派遣された専門家の派遣分野と人数については以下の通りである。(詳細は別添ミニッツに示す。)

#### (1) 専門家派遣

##### a) 長期 【実績】 10名

1) チーフアドバイザー	石崎 俊	90/10/15-92/ 3/31
2) チーフアドバイザー	黒田 哲平	92/ 3/23-94/ 3/22
3) 業務調整員	丸山智恵子	91/ 1/17-95/ 3/31
4) 人工知能	大野泰治郎	91/ 2/18-93/ 2/28
5) 人工知能	久保田寧人	93/ 3/ 1-95/ 3/31
6) 人工知能	高森 紀吉	91/ 2/18-95/ 3/31
7) 人工知能	藤井恵美子	91/ 2/18-93/ 3/31
8) 人工知能	川武 勉	93/ 3/10-95/ 3/31
9) 人工知能	中村 浩政	91/ 2/18-93/ 6/30
10) 人工知能	庄司 速人	93/ 5/ 6-95/ 3/31

##### b) 短期 【実績】 5名

##### 1990年度

機材以外	清水 明	90/12/ 5-90/12/ 9
機材以外	赤池 龍一	90/12/ 5-90/12/ 9
ケーブル据付け	〃	91/ 1/17-91/ 2/ 6
機材据付け	加賀谷 誠	91/ 2/25-91/ 3/17
機材据付け	両角 聖	〃

##### 【実績】 15名

##### 1991年度

エキスパートシステム知識獲得及び評価	寺野隆雄	91/10/20-91/10/27
高速推論知識ベース	牧野武則	91/11/17-91/11/27
マシンインターフェイス	菅井勝	91/12/ 1-91/12/ 7
マシンインターフェイス	伏見諭	92/ 1/12-92/ 1/19
エキスパートシステム開発方法論	古関義幸	92/ 2/23-92/ 2/29

##### 〈セミナー〉

AIとエキスパートシステムの事例紹介	渡辺信行	91/ 6/ 9-91/ 6/12
エキスパートシステム開発方法論	井田昌之	91/ 9/ 8-91/ 9/15
第五世代・新情報処理技術プロジェクト	古川康一	91/ 9/17-91/ 9/21
第五世代・新情報処理技術プロジェクト	古谷立美	91/ 9/18-91/ 9/22

自然言語技術及び自然言語応用	田中穂積	91/11/21-91/11/26
自然言語技術及び自然言語応用	野村浩郷	91/11/20-91/11/28
エキスパートシステム一般	小林重信	92/ 3/ 4-92/ 3/ 8
製造業エキスパートシステム	和田慎一	92/ 3/ 4-92/ 3/ 8
金融エキスパートシステム	白井康之	92/ 3/ 4-92/ 3/ 9
AI医療情報	熊本一郎	92/ 3/ 4-92/ 3/ 9

【実績】17名

1992年度

グラフィックス 応用技術	武藤泰司	92/ 6/21-92/ 6/28
グラフィックス 応用技術	渡辺俊	92/ 8/16-92/ 8/23
人工知能開発手法	麻生川稔	92/ 7/26-92/ 8/ 2
人工知能開発手法	島津秀雄	92/ 9/ 6-92/ 9/14
人工知能開発手法	井田昌之	92/ 9/13-92/ 9/20
グラフィックユーザインターフェイス	新井利幸	92/11/29-92/12/ 7
ファジー理論	浦崎一朗	92/11/30-92/12/ 3
ニューラルネットワーク	土 多裕	92/12/ 6-92/12/14
最新AI技術	石崎俊	93/ 3/ 2-93/ 3/ 6

〈セミナー〉

ファジロツック	馬野元秀	92/ 6/10-92/ 6/14
ファジロツック	赤堀裕志	92/ 6/10-92/ 6/14
AI技術 (VR)	坂村健	92/ 9/18-92/ 9/22
AI技術 (カオス)	武藤敏央	92/ 9/18-92/ 9/22
事例推論	小林重信	92/11/12-92/11/15
制約プログラミング	相場亮	92/11/12-92/11/15
知識ベース 応用技術	宇田川拓雄	93/ 3/10-92/ 3/14
知識ベース 応用技術	大内昭洋	93/ 3/10-92/ 3/14

【予定】17名

1993年度

遺伝アルゴリズム	1名	93/ 8/ -93/ 8/
Smalltalkプログラミング	1名	93/10/ -93/10/
制約プログラミング応用	1名	93/12/ -93/12/
Chaos/Fractal 応用	1名	94/ 3/ -94/ 3/
プログラマ D助言/指導	5名	/ / - / /

〈セミナー〉

第5世代コンピューターシステム およびリアルワールドコンピューティング 瀧和男 93/ 7/27-93/ 7/31  
(大規模並列処理)

〃 岡隆一 93/ 7/27-93/ 7/31  
遺伝アルゴリズム応用 2名 93/ 9/ -93/ 9/  
マルチメディアと教育に樹る知的システム 2名 93/12/ -93/12/  
Chaos/Fractal 実用 2名 94/ 3/ -94/ 3/

(2) 研修員受入

【実績】 12名

1990年度

人工知能分野

Slew Yim Cheng 90/11/12-91/ 2/ 2  
Chee Chean Wee 90/11/12-91/ 2/ 2  
Tan Lay Eng 90/11/12-91/ 2/ 2  
Wong Shiow Pyng 90/11/12-91/ 2/ 2

1991年度

Ang Ahbing, Veronica Bernadette 92/ 2/ 7-92 5/ 1  
Ayusnl Amran 92/ 2/ 7-92/ 5/ 1  
Tlan Saumeng, Oliver 92/ 2/ 9-92/ 5/ 1  
Lee Chye Seng 92/ 2/15-92/ 5/ 1

1992年度

Wong Siow Pyng 93/ 1/07-93/ 4/ 6  
Tan Lay Eng 93/ 1/07-93/ 4/ 6  
Arifin Bin Othman 93/ 3/25-93/ 6/29  
NG Kim Hock 93/ 3/25-93/ 6/29

1993年度

【予定】 2名

画像処理技術

Tony Lee Chye Seng 94/ 1/ -94/ 6/  
Goh Liang Kee 94/ 1/ -94/ 6/

・調査結果の留意事項

日本での研修で習得した技術は、現地でのLecture 及びミニ・プロジェクト 開発に大いに利用し役立っている。  
特に、通関品目コードシステム はプロジェクトができ、デモンストラシヨ ンが行われた。

今後の日本での研修は、より高度で複雑な技術習得を希望している。

(3) 機材供与

【実績】

(1) ハードウェア 主要機材

①ワークステーション	NEC EWS 4800/20 (CISC)	21台
	NEC EWS 4800/60 (CISC)	6台
	NEC EWS 4800/220	1台
	NEC EWS 4800/260	2台
	NEC EWS 4800/230	6台
	SONY NEWS 3860	1台
	SONY NEWS 3410	1台
	HP APOLLO 9000 S400	1台
	HP 900/750	1台
	HP 900/720	1台
	SUN Sparcstation	2台
	SUN SPARClassic	1台
	NEXT Cube	1台
	SUN IPX	1台
	計	46台

②マイクロピューター	NEC Powermate PC-386	20台
	NEC PC9801 (Laptop)	5台
	NEC PC9801 PX2E-2	6台
	NEC Notebook 386/SX	1台
	NEC PC-486	8台
	Macintosh Quadra	3台
	Macintosh II	6台
	Macintosh Classic	9台
	Macintosh LC	13台
	Macintosh Powerbook	2台
	計	73台

③プリンタ- 他	NEC Silentwriter LC890	8台
	NEC Pinwriter P6300	10台
	Tektronic Phaser II Printer	
	Tektronic Colour Scanner	1台
	Apple Laserwriter II NTX	1台
	Fujitsu Scanner	1台
	NEC 21" Monitor	1台
	TI Microlaser	1台

(2) ソフトウェア 主要機材

EWS用ソフト (4800/60, 20)

HPワークステーション用ソフト

SUNワークステーション用ソフト

オペレーティングシステム

C++ソフト (4800/60, 20)

CISC 用AIソフト

RISC 用AIソフト

RISC 用翻訳ソフト

パソコン用ソフト

・上記機器の内、講習用として、ワークステーション45台、PC27台が使用され、残りはスタッフ用として教育資料の作成に使用されている。

1993年度供与機材

【予定】

- |                       |   |        |
|-----------------------|---|--------|
| ①ワークステーション CISC用AIソフト | } | 購送手続き中 |
| RISC用AIソフト            |   |        |
| 大容量バックアップ装置           |   |        |
| ②高速ワークステーション 追加機器     | } | 現地調達   |
| SUN アップグレードキット        |   |        |
| HPアップグレードキット          |   |        |
| SUN Spare             |   |        |
| ③ソフトウェア               | } | 現地調達   |
| PCシェル                 |   |        |
| GAI ツール<br>言語         |   |        |
| ④ネットワークファイバー          |   |        |

### 3-2 シンガポール側

#### (1) 建物施設等プロジェクト・サイト基盤整備状況

本センターは1991年2月に現建物に移転し、その後管理・整備が良好に実施されていることを確認した。

#### (2) 機材措置及び維持管理状況

##### 1) 機材措置状況

シンガポール国側で、購入した機材は以下のとおりである。

1990年度	Macintosh Classic	9台
	Macintosh II	1台
1991年度	NEC Notebook	1台
	NEC PC-486	1台
	Macintosh II	3台
	Macintosh LCII	3台
	Macintosh Powerbook	1台
1992年度	NEC PC-486	4台
	Macintosh LCII	3台

##### 2) 維持管理状況

機材の維持管理は、管理台帳により適切に管理されていることを確認した。

#### (3) 組織、カウンターパート及びスタッフの配置

組織、カウンターパート及びスタッフの配置については、以下のとおりであることを確認した。

##### 1990年度【実績】

副所長	1	}	10
マネージャー (事務)	1		
〃 (技術)	1		
インストラクター	4		
事務職員	3		

##### 1991年度

【実績】副所長	1	}	17
マネージャー (事務)	1		
〃 (技術)	1		
インストラクター	8		
事務職員	6		



1992年度【実績】

副所長	1	}	17
マネージャー (事務)	1		
〃 (技術)	1		
インストラクター	8		
事務職員	6		

1993年度【予定】

副所長	1	}	20
マネージャー (事務)	1		
〃 (技術)	1		
インストラクター	10		
事務職員	7		

1994年度【予定】

副所長	1	}	20
マネージャー (事務)	1		
〃 (技術)	1		
インストラクター	10		
事務職員	7		

(4) ローカルコスト負担

ローカルコスト負担は、下記のとおりであることを確認した。

1) 人件費、マイルワル料、広報費等

1990年度【実績】

人件費	S \$ 266,000	( 2128 万円)
マイルワル料	S \$ 1,300	( 11 万円)
広報費等	S \$ 201,700	( 1614 万円)
ソト 購入費等	S \$ 460,000	( 3680 万円)
計	S \$ 929,000	( 7433 万円)

1991年度【実績】

人件費	S \$ 770,000	( 6160 万円)
マイルワル料	S \$ 654,000	( 5232 万円)
ソビクメナツス	S \$ 93,000	( 744 万円)
広報費等	S \$ 303,000	( 2424 万円)
ソト 購入費等	S \$ 465,000	( 3720 万円)
計	S \$ 2,285,000	(18280 万円)

1992年度【実績】

人件費	S \$ 960,000	( 7680 万円)
オフィシャル料	S \$ 654,000	( 5232 万円)
コンピュータリソース	S \$ 241,000	( 1928 万円)
広報費等	S \$ 305,000	( 2440 万円)
ソト 購入費等	S \$ 128,000	( 1024 万円)
計	S \$ 2,288,000	(18304 万円)

注：上記括弧内の数字は、1 S\$=80 円として算定した。

1993年度【予定】

人件費	S \$ 1,010,000
オフィシャル料	S \$ 654,000
コンピュータリソース	S \$ 256,000
広報費等	S \$ 472,000
ソト 購入費等	S \$ 0
計	S \$ 2,507,000

4. 技術協力計画 (TCP) の進捗状況と次年度計画

調査結果の要約にも記載した通り、本プロジェクトは現在まで順調に推移してきている。  
 現在までの進捗状況と次年度計画を協力分野毎に列記すれば以下の通りである。

1) 研修コース

1991年度【実績】

③プログラムA	91/ 8/ 6~91/ 8/ 8	}	参加者79名
ネットワーク対象、3日間	91/ 8/28~91/ 8/30		
	92/ 1/15~92/ 1/17		
	92/ 1/27~92/ 1/29		
	92/ 2/19~92/ 2/21		
⑥プログラムB	92/ 1/20~92/ 4/28		参加者 8名
ソフトウェア・エンジニア対象、14週間			
⑦プログラムC			
各業界専門家対象、2週間	91/11/ 4~91/11/15		参加者 7名
⑧セミナー	7回実施		参加者665名

1992年度【実績】

①研修コース

③プログラムA	92/ 6/ 8~92/ 6/10	}	参加者67名
ネットワーク対象、3日間	92/ 7/ 8~92/ 7/10		
	92/ 9/ 1~92/ 9/ 3		
	92/10/28~92/10/30		
	93/ 1/13~93/ 1/15		

⑥プログラムB

ソフトウェア・エンジニア対象、14週間	92/ 9/ 1~92/12/ 5	参加者29名
〃 , 7か月パートタイム入	93/ 3/ 2~	
(週3日, 夜間2日・土曜午前1日)		

・パートタイム入は脱落者も少なく順調に進捗している。

⑦プログラムC

各業界専門家対象、3日	92/ 8/19~92/ 8/21	参加者17名
	参加者取止ぬ付き 中止	
	92/10/14~92/10/16	
	93/ 2/24~93/ 2/26	

- ◎プログラムD 92/ 5/19～92/11/21 参加者13名  
 加付開発・実習6か月 93/ 1/ 4～継続中  
 93/ 2/15～継続中  
 93/ 3/ 1～継続中
- ④セミナー 4回実施 参加者 384名
- ◎アドホックコース  
 外部機関と共同で4加付外  
 内部加付外で3加付外

1993年度【予定】

①研修コース

- ④プログラムA 93/4/1,7～8、 93/4/14～16 7回実施予定  
 ネットワーク対象、3日間 93/5/3～5、 93/7/14～16  
 93/8/16～18、 93/10/13～15  
 94/1/12～14、

⑤プログラムB

- ソフトウェア・エンジニア対象、14週間 93/5/3～8/6、93/9/2～94/3/26 3回実施予定  
 94/3/1～94/9/24

// ,7か月パートタイム 93/ 3/ 2～継続中

- ◎プログラムC 93/8/25～27、 94/ 2/23～25 2回実施予定  
 各業界専門家対象、3日間

- ◎プログラムD 93/8、 94/2 2回実施予定  
 加付開発・実習 6か月

- ④セミナー 第1回は7月末開催予定 4回実施予定

- ◎アドホックコース 2回実施予定

・調査結果の留意事項

日本の長期／短期専門家及び日本での研修により、計画どおり技術移転が行われている。  
 現在、かつかートの半数は、専門家のサポートなしで、一部分行えるようになりつつある。

## 5. プロジェクト運営上の問題点

### 5-1 第3国研修の実施

シンガポール国側から、本プロジェクトの終了した1995年4月以降、東南アジア地域を対象とした第3国研修の実施の可能性についてJICAの考えを聞きたいとの要請があったが、この件に関しては、本調査団の調査範囲を超えるものであり、要望を持ち帰り関係部署に連絡する旨説明した。

### 5-2 本プロジェクト終了後のフォローアップ

シンガポール国側から、本プロジェクト終了後シンガポール国側カウンターパートへの新技術対応、技術移転のソフトランディング、地域研修の連絡調整等のため少数の長期専門家、短期専門家、機材供与等のフォローアップを強く要望するとの要請があったが、本件に関しては、上記の第3国研修同様、要望を持ち帰り関係部署に連絡する旨説明した。

### 5-3 供与機材の旧型化、陳腐化への対応

情報処理分野は技術進歩が急速で、当初供与したワークステーション、パソコン及びソフトウェアが旧型化、陳腐化しており、これらを最新型のものに更新することが望ましいとの要望があった。調査団としては、そのような問題があることは理解できるが、現行の制度上本プロジェクトの技術協力期間内での更新は困難である旨説明し、シンガポール国側から了承が得られた。

### 5-4 日本でのカウンターパート研修

本年度から、日本でのカウンターパート研修について2人・6か月が認められたが、研修期間を2年とし、1年目の6か月と2年目の6か月をJICAで、残りの各6か月を大学で研修受けることは可能かとの提案があった。この提案は、JICA本部持ち帰り関係部署に伝えることとした。

### 5-5 知的所有権の取扱い

シンガポール国側からプロジェクト技術協力の成果物の知的所有権について、所有権、使用权及び販売権に分類した具体的な帰属先の提案があった。JICAにとって受け入れ易い内容ではあるが、JICA本部の法務室で検討しており、その方針によりプロジェクト終了時までに結論を出すこととした。

## 6. 調査団長の所感

### 1) プロジェクトの現況について

センターの運営では、研修生の数、研修内容などほぼ計画通りに行われている。技術移転も順調で、インストラクタの技術レベルも計画通りに向上しており、プログラムA、B、Cに関しては、近いうちに自立可能な状態にあると思われる。

プログラムDについては、いくつかのプロトタイプシステムを作成し、デモンストレーションが可能なものもある。特に、PWDとの共同プロジェクトでは、建築基準法に関するエキスパートシステムの実用化へ向けての開発が進められていて大いに期待される。ただし、プロトタイプシステムでは高度の専門性が要求されるため、日本の長期・短期専門家の指導、技術移転が当分の間必要であろう。

### 2) コンピュータ等十分な機器について

現在、研修用にプロジェクト開始時に導入したCISCマシンを30台近く使用しているが、旧型であるためスピードが遅く（最新型の10分の1近い）、また最新のソフトが動かない状況にある。

研修生が研修を終えて自社でシステム開発を行うときに、速やかに研修内容を生かすためには、なるべく早くRISCマシンを追加購入しソフトウェアを整備する必要がある。

### 3) フォローアップについて

プロジェクト終了時には、センターではフォローアッププロジェクトを強く要望している。前述したプログラムDにおける日本人専門家の必要性などもあるため「ソフトランディング」の実現が望まれる。

### 4) 知的所有権について

知的所有権については、シ側は良く内容を理解し協力的である。JICAから方針を示せば円満な合意を得られると思われる。ただし、短期専門家が日本から持参するソフトウェアについては、手続き上のチェックを慎重に行うことが必要であり、そのソフトウェアの使用権についても十分な検討を要すると思われる。

## 資料 1 ミニッツ





MINUTES OF MEETING BETWEEN THE JAPANESE CONTACT  
MISSION AND SINGAPORE COUNTERPART ON THE PROGRESS  
AND UPDATES OF JAPAN-SINGAPORE AI CENTRE (JSAIC)

A Contact Mission from Japan (hereinafter referred to as "the Japanese Team") organised by the Japan International Cooperation Agency (JICA) and headed by Dr Shun Ishizaki, Professor Faculty of Environmental Information, Keio University, visited the Republic of Singapore from 13 July 1993 to 18 July 1993 for the purpose of reviewing the progress of the Japan-Singapore AI Centre (JSAIC) and discussing the coming year's plan with the Singaporean authorities concerned (hereinafter referred to as "the Singapore Team").

As a result of the discussions, the Japanese Team and the Singapore Team agreed to recommend to their respective Governments the matters referred to in the document attached hereto.

Singapore, 17 July 1993

Dr Shun Ishizaki  
Leader  
Contact Mission  
Japan International Cooperation Agency (JICA)

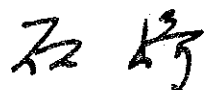
Mr Ko Kheng Hwa  
Chief Executive  
National Computer Board  
Ministry of Finance  
Republic of Singapore

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PARTICIPANTS FROM THE SINGAPORE TEAM

<u>Name</u>	<u>Designation</u>
Mr Ko Kheng Hwa	Chief Executive National Computer Board (NCB)
Mr Saw Ken Wye	Deputy Director Japan-Singapore AI Centre (JSAIC)
Mr Chee Chean Wee	Manager, Application and Training Japan-Singapore AI Centre (JSAIC)
Mr Teo Thiam Chye	Manager, Administration & Marketing Japan-Singapore AI Centre (JSAIC)
Miss Siew Yim Cheng	Knowledge Engineer Japan-Singapore AI Centre (JSAIC)



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PARTICIPANTS FROM THE JAPANESE TEAM

<u>Name</u>	<u>Designation</u>
Dr Shun Ishizaki (Leader)	Professor Faculty of Environmental Information Keio University
Mr Yasuhiro Kusaka	Assistant Chief Policy Planning Information System Department Research Institute of International Trade and Industry Ministry of International Trade and Industry (MITI)
Mr Takeo Kurosawa	General Manager For International Promotion Division Center of the International Cooperation for Computerization (CICC)
Mr Kiyoshi Sugimoto	Consultant Planning and Coordination Division Center of the International Cooperation for Computerization (CICC)
Mr Tadatoshi Sasaki	Staff Technical Cooperation Division Mining and Industrial Development Cooperation Department Ministry of International Trade and Industry (MITI)
Mr Teppei Kuroda	Chief Adviser Japan-Singapore AI Centre (JSAIC)
Miss Chieko Maruyama	Coordinator Japan-Singapore AI Centre (JSAIC)

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### 1. Welcome and Introduction

- 1.1 The Singapore Team welcomed the Japanese Team to Singapore.

### 2 Amendments to Minutes of Contact Mission 1992

- 2.1 The date stated for Intelligent Systems for Business Professional course in the Minutes of Meeting for Contact Mission 1992 Annex 2, page A-6 should be 4 - 15 Nov 1991 and not 4 - 15 Nov 1992.

### 3 Agenda

- 3.1 The agenda was confirmed as :

- Progress update by Singapore Team
  - Training Programmes - Programme A - D
  - Seminars
  - Manpower Plan
  - Hardware and Software Acquisition
  - Short Term Experts
  - Workplan for 93/94
  - Japanese Long Term Experts
  - Technology Transfer Programme
- Progress update by Chief Adviser
- Needs of JSAIC
  - Hardware
  - Software
  - Training Equipment
  - Networking
- Counterpart Training
- Intellectual Property Rights
- Beyond 1995
- General Discussion

Please see Annex 1 for more details.

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### 2. Progress Update by Singapore Team

2.1 The Singapore Team had originally prepared to update the Japanese team on activities carried out from July 1992 to June 1993, a twelve month period since the last Contact Mission. However it was clarified that the review period should be from 1 April 1992 to 31 March 1993. In view of this, the Singapore Team clarified that the targets for JSAIC set at the last Contact Mission in 1992 had been based on a plan from July 1992 to June 1993. The Singapore Team had, at that time, unknowingly adopted a twelve month planning cycle from the Contact Mission date. The Japanese Team were therefore requested to take this change in consideration when evaluating the performance of the Centre.

2.2 The Singapore Team proceeded to brief the meeting on the activities and events that were held from April 1992 to March 1993. The briefing papers are included in Annex 2. In summary, during the review period, JSAIC conducted:-

- five Intelligent Systems for Managers course
- two Intelligent Systems for Business Professionals course
- two Intelligent Systems for IT Professionals course, including one part-time course
- two Prototyping programmes
- one 'ad hoc' course
- 20 seminars/talks/presentations

### 3 Intelligent Systems for Managers (Programme A)

3.1 A total of five Intelligent Systems for Managers courses were held during the review period to 67 participants. The five courses conducted included two courses conducted under the Intelligent Systems for Public Administration programme.

3.2 The courseware for the programme had undergone two major reviews. A methodology for identifying suitable areas for the technology was also developed. Called, ISIP (Intelligent Systems Identification Process), this methodology helps to guide an organisation through the various steps involved in selecting a suitable application area for intelligent systems.

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### 4 Intelligent Systems for Business Professionals (Programme C)

- 4.1 During the review period, two courses were conducted to a total of 17 participants. The Singapore Team mentioned that it had been fairly successful in marketing this programme to organisations participating in the Prototyping Intelligent Systems programme.
- 4.2 The 'hands-on' workshops for the programme are currently being expanded to include cases in different domains, for example in scheduling, diagnostics, etc.

### 5 Intelligent Systems for IT Professionals (Programme B)

- 5.1 Two courses were conducted during the review period to a total of 29 participants. This included a part-time programme introduced in March 1993.
- 5.2 In response to a query from the Japanese Team, the Singapore Team explained that the contact time for the part-time Intelligent Systems for IT Professionals course could be reduced from 67 to 44 days because a substantial portion of exercises and practical work were expected to be performed at the student's own time. The total elapsed time for the part-time programme is approximately 7 months.
- 5.3 The Singapore Team thanked the Ministry of International Trade and Industry and the Center of International Cooperation on Computerization for their strong support in accrediting the examinations conducted for this programme.
- 5.4 So far, a total of nine participants had been awarded the Diploma in Intelligent Systems. Five participants graduated from the first class held from January - March 1992. It was confirmed that only students who had passed all their examinations were awarded the Diploma in Intelligent Systems.
- 5.5 A copy of the diploma awarded is attached in Annex 3.

### 6 Prototyping Intelligent Systems

- 6.1 A total of 13 participants from nine organisations participated in this programme. The participants in this programme were generally grouped into two major intakes, in May 1992 and in January 1993.

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6.2 The results of the prototypes developed so far had been very encouraging with only one project of the nine not proceeding beyond the prototype stage. Three projects are already proceeding with final implementation. Another project was awaiting budget approval while two more are currently undergoing test trials. User interests remained high in the remaining two projects and some extra work was still being undertaken to improve functionality before a final decision was made.

### 7 Ad Hoc Courses

7.1 In addition to the planned programmes, JSAIC also conducted an 'ad hoc' course on C++ programming for 22 participants from the Port of Singapore Authority (PSA). The PSA is a major AI user in Singapore and is planning to migrate its existing intelligent systems from Objective C to C++.

### 8 Seminars

8.1 During the review period, four seminars were conducted with assistance from the Japan International Cooperation Agency (JICA). They attracted a total 384 participants. Another 5 company sponsored seminars were also held for a total of 175 participants. In addition, JSAIC, working with other organisations in Singapore, also organised another 6 seminars to some 732 participants. This includes the First Singapore International Conference for Intelligent Systems (SPICIS) in 1992 which attracted 253 delegates. In the last financial year, JSAIC was also invited to give 5 talks/presentations to Singapore organisations. The seminar details are included in Annex 4.

8.2 It was highlighted that the JSAIC Seminars organised in FY91, with JICA assistance, attracted a far higher number of participants. The Singapore Team explained that in FY91, seven seminars were organised as opposed to four this review period.

### 9 Comparison of Activities Undertaken with Targets in ROD

9.1 In response to a request from the Japanese Team, the targets of the project, as specified in the ROD, were compared with the results achieved so far. The comparison of activities undertaken with ROD targets is included in Annex 5.

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### 10. Manpower Plan

10.1 The Singapore Team reported on the manpower position of the centre. For the coming financial year, JSAIC was looking to hire two additional instructors as well as another systems administrator. The detailed manpower plan is included in Annex 6.

### 11. Hardware and Software Acquisition

11.1 The Singapore Team updated the meeting on the hardware and software acquired during the review period. The details are included in Annex 7.

### 12. JSAIC's Local Budget

12.1 The Singapore Team reported on the expenses incurred during the review period. It was clarified that the figures presented had not been verified by the Auditors and may be subject to some minor variances. A copy of the budget summary is included in Annex 8.

### 13. Short-Term Experts

13.1 The Singapore Team reported that during the review period, 17 short-term experts had been despatched to Singapore. Nine short-term experts were involved in specific technology transfer projects. The remaining eight had given talks at the JSAIC Seminars.

13.2 Details of the short term experts assignments are included in Annex 9.

### 14. Other Activities

14.1 In addition to the courses and seminars conducted, JSAIC had also managed to achieved the following:-

- i) revised course brochures and marketing materials
- ii) produced a Corporate Video
- iii) produced an in-house newsletter - AI Post

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7.2 4.3



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- iv) conducted a Strategic Intent/Core Competency workshop for all local and Japanese staff
- v) gave all staff internet access

### 15. Workplan for 93/94

- 15.1 The Singapore Team presented the workplan for FY 93/94. According to the plan, seven Managers' course, two Business Professionals' course, two part-time and one full-time IT Professionals' course would be conducted. The Prototyping Programme would be ongoing throughout the period, with two major intakes.
- 15.2 Four JSAIC Seminar Series, four Company/End-User Seminars and six Talks/Presentations had also been planned.
- 15.3 JSAIC would also be organising the first Symposium on Intelligent Systems Applications in Nov 1993. This symposium would have invited papers from companies who have successfully implemented intelligent systems in Singapore. It is hoped that sharing real experiences in the use of intelligent systems would help encourage other Singapore organisations to embrace the technology.
- 15.4 A detailed workplan, including the marketing plan and course calendar, is included in Annex 10.

### 16. Japanese Long Term Experts

- 16.1 The Japanese Team asked for feedback on the role of Japanese long-term experts. The Singapore Team replied that the local technical staff are looking to improve their skills through working on prototyping projects in Programme D with JSAIC clients. Therefore, the best model for continued technology transfer and upgrading would be for the long term experts to work closer with the local instructors on such projects. The current working arrangements between the Japanese experts and local staff were moving in the right direction.

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### 17. Progress Update by Chief Adviser

- 17.1 Chief Adviser, JSAIC highlighted that Intelligent Systems is an advanced technology that is changing very rapidly. It is therefore extremely important that JSAIC instructors are continually updated to be kept abreast of these advances.

### 18. Assessment of Progress

- 18.1 The Japanese Team was keen to seek the Singapore Team's opinion of the progress of the project. In particular, they were interested in trying to quantify the skills level of the local instructors. The Singapore Team replied that, in general, the skills level of the technical staff had improved greatly since the start of the project. However, it would be difficult to quantify the skills or expertise level. This technology area was rapidly changing and, as such, the yardstick of measure of was also continually changing. In this industry, without continual upgrading, the knowledge gained previously is quickly overtaken by new developments. The technology window was very small and, for JSAIC to be effective, its instructors must constantly be kept on the look out for new skills to acquire.

### 19. The Needs of JSAIC

- 19.1 Over the last two years, JSAIC had been aggressively building up awareness in the technology among Singapore organisations. It had also used this time to develop and fine tune its technology transfer programmes to the local industry - courses, seminars, etc. It was only natural that the main thrust of the Centre in the coming years would be to champion widespread proliferation in the use of intelligent systems. For this goal to be achieved, JSAIC would need a good supportive environment. This would include a good development platform, a wide range of software tools, enhanced network security and an excellent training environment.
- 19.2 The Singapore Team added that it was planning to enhance the curriculum in Programme B. More advanced tools and techniques must be introduced to reflect current technology trends. New workstations and also personal computers are therefore needed to help support this new initiative. As the technology evolves, JSAIC must respond accordingly and ensure that the latest

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practices and techniques are taught. JSAIC must do so, to maintain its leadership position in championing intelligent systems technology.

19.3 In view of the impending changes to the course curriculum and the need for a good supportive infrastructure, the Singapore Team asked the Japanese Team to consider its request for additional budget for hardware, software and training equipment. The items needed are included in Annex 11. The Japanese Team clarified that JSAIC's need for FY94 were beyond the purview of the current Team. However, they would be prepared to relay our request to the appropriate authorities in Japan.

19.4 The existing network configuration and hardware/software status in the Centre is included in Annex 12 for reference.

### 20. Counterpart Training

20.1 With regard to the counterpart training programme, the Singapore Team said that it would like to send two instructors to Japan for a period of six months. JSAIC wanted to increase the technical competency of its instructors and strongly believed that the longer time spent in Japan would help. The longer training stint would hopefully enable our instructors to be involved in more complex and challenging work. A possible project would be identified in Singapore and preliminary design undertaken locally. The training in Japan would then focus on trying to find a solution to the problem encountered. A probable project mentioned was one involving the use of image recognition technologies to help in optical inspection of printed circuit boards.

20.2 The Singapore Team agreed to provide more details on the type of training required by end August 1993. In particular, specific milestones, to be achieved over the six month period.

20.3 The Singapore Team also enquired on the possibility of getting the research work undertaken recognised as part fulfillment of an academic award. For example a Master's degree. The Japanese Team replied that they would look into the matter and advise the centre accordingly.

20.4 The outline of the training needs for the local instructor is included in Annex 13.

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### 21. Intellectual Property Rights

- 21.1 The Singapore Team briefed the meeting on its stand on intellectual property rights. This would relate to both the ownership of, and the right to use, materials and software developed in JSAIC. The details in included in Annex 14.
- 21.2 Software/materials owned by JSAIC would include all work undertaken by local staff, long term Japanese experts and also joint work between local staff and long term Japanese experts. JSAIC would not be able to claim full rights to works developed jointly with its clients, for example Programme D prototypes.
- 21.3 As this subject was discussed in the last contact mission in 1992, the Singapore team requested for JICA's opinion with regards to the issue. The Japanese Team replied that JICA headquarters was currently studying the implications of intellectual property rights and would develop a framework for use before the end of the project . The Singapore Team reiterated its stand that it would be prepared to share with JICA the rights to use for all software/materials developed in JSAIC. However, should JICA wish to share these software/materials with another organisation/country then the right to use should be negotiated on a 'case by case' basis.

### 22. Beyond 1995

- 22.1 The Singapore Team explained that they were currently planning for JSAIC's role after 1995. A review would carried out to assess the demand for, and the importance of the technology. It would be necessary to assess the competencies in the technology in both JSAIC and the industry. If the demand for the technology was still high and competency gap between JSAIC and industry still large, there was good justification to continue JSAIC in some form. Further, new developments such as the IT2000 Masterplan, IT R&D Review and the Japan-Singapore Partnership Programme could also influence the role of JSAIC.
- 22.2 In line with this review process, the Singapore Team explored the possibility of a "follow-up" project with JICA for the Centre. Although quite significant progress had been made so far, there was still much to be done. In particular, the use of intelligent systems technology in industry needs to be further

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improved. JSAIC's long term viability depends on its ability to generate the critical mass of clients who can then help excite and drive the other Singapore organisation towards this technology. It would be rather optimistic to hope that the acceptance and use of intelligent technologies could be achieved on a sustainable scale before the end of the project.

- 22.3 Further, the Singapore Team believed that the "follow-up" project was extremely important for a smooth transition from a joint project to a self running entity. Singapore still needed strong support from the Japanese Government, to help guide the direction of the Centre as well as to provide the continued upgrading in this fast changing technology. A tentative outline of the level of support required is included in Annex 15.
- 22.4 The Japanese Team understood the Singapore Team's position and said that they would convey the request for this "follow-up" support to the relevant Japanese authorities.

### 23. Third Country Training Programme

- 23.1 The Singapore Team indicated that they were prepared to support the Third Country Training Programme. The course materials were already available and a good course curriculum could easily be developed within 3-6 months. A possible timeframe for implementation could be in FY95 or FY96.
- 23.2 The Japanese Team said that they would inform JICA Headquarters of the Singapore Team's interest in this programme.

### 24. Concluding Remarks

- 24.1 Mission Leader thanked the Singapore counterparts for the appropriate arrangements of the meetings and hoped that the project would progress in its present well organised way to achieve the challenging vision that it sets.
- 24.2 Deputy Director, JSAIC thanked the mission members for their strong support in this project.

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## SUMMARY OF ANNEXES

Agenda for Contact Mission 13-18 July 1993	Annex 1
Programme A - D Review	Annex 2
JSAIC Diploma in Intelligent Systems	Annex 3
JSAIC Seminars	Annex 4
Activities Undertaken/ROD targets	Annex 5
Manpower Plan	Annex 6
Hardware and Software Acquisition	Annex 7
JSAIC's Local Budget	Annex 8
Short Term Expert	Annex 9
Workplan	Annex 10
Hardware and Software Needs FY '94	Annex 11
Existing JSAIC Hardware/Software Environment	Annex 12
Counterpart Training	Annex 13
Intellectual Property Rights	Annex 14
Needs for Follow-up Project	Annex 15

**Annex 1 :**

**Agenda for Contact Mission**




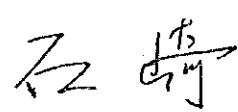
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## AGENDA FOR CONTACT MISSION FROM 13-18 JULY 1993

Date	Day	Time	Activity	Venue
13-Jul	Tue	6.30pm	Arrival of Contact Mission	Changi Airport
14-Jul	Wed	9.30am 10.30am 2.00pm 3.00pm  5.00pm 7.00pm	Visit to JICA Courtesy Call on Japan Embassy Courtesy Call on CE, NCB/Chairman, JSAIC Visit to JSAIC Briefing on • Progress Update by Deputy Director, JSAIC • Progress Update by Chief Advisor, JSAIC • Tour of Facilities • Demo (BPPS, PTAS, SMRT) End Dinner for Contact Mission Members (Hosted by JICA)	JICA Office Japan Embassy NCB JSAIC Conference Rm     Lei Garden Restaurant
15-Jul	Thur	9.00am  10.30pm 11.00pm 12.30pm 1.30pm 3.00pm 3.30pm 5.00pm 7.00pm	Needs of JSAIC • Hardware - EWS/PCs • Software • Training Equipment • Networking Tea Break Counterpart Training Lunch Beyond 1995 Tea Break Intellectual Property Rights End Dinner for Contact Mission Members (Hosted by CICC)	JSAIC Conference Rm        Temasek Club
16-Jul	Fri	9.00am 12.30pm 2.30pm 7.30pm	Any Other Matters Documentation Review of Minutes Dinner for Contact Mission Members (Hosted by JSAIC)	JSAIC Conference Rm   Empress Room (Raffles Hotel)
17-Jul	Sat	9.00am 12.00pm	Finalise Documentation Sign Minutes followed by Lunch hosted by Contact Mission	JSAIC Conference Rm  ANA Hotel (All Staff)
18-Jul	Sun		Return to Japan	



**Annex 2 :**

**Programme A - D Review**



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## JSAIC Programmes

- Intelligent Systems for Managers
- Intelligent Systems in Public Administration
- Intelligent Systems for Business Professionals
- Intelligent Systems for IT Professionals
- Prototyping Intelligent Systems
- Ad Courses
- Seminars



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## Intelligent Systems for Managers

- Review Period
- 3 courses conducted
- 67 participants
- Courseware (2 reviews)
- Intelligent Systems Identification Process (ISIP)



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## Intelligent Systems for Business Professionals

- Review Period
- 2 Courses conducted
- 17 participants
- more focussed workshops



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## Intelligent Systems for IT Professionals

- Review Period
- 2 Courses conducted
- 29 participants
- Part-time programme introduced in Mar '93
- exams accredited by MITI



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## Prototyping Intelligent Systems

- Review Period
- 9 prototypes completed
- 13 participants
- 9 companies

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## COURSES

	Date	No. of Participants	Duration	Trg Days
Intelligent Systems for Managers	8 - 10 Jul 92	9	3	27
	28 - 30 Oct 92	8	3	24
	13 - 15 Jan 93	11	3	33
Intelligent Systems in Public Admin	8 - 10 Jun 92	17	3	51
	1 - 3 Sep 92	22	3	66
Intelligent Systems for Business Professionals	14 - 16 Oct 92	5	3	15
	24 - 26 Feb 93	12	3	36
Intelligent Systems for IT Professionals	1 Sep 92	4	67	268
	2 Mar 93	25	44	1100
Prototyping Intelligent Systems	19 May 92	7	132	1056
	4 Jan 93	4	132	528
	1 Mar 93	2	66	132
<b>Total</b>		<b>126</b>		<b>3204</b>



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## Training Programmes - Accomplished to Date

Courses	Frequency to Be Conducted (Stated in ROD)	Numbers Conducted (June 1993)	Number of People Trained (June 1993)
Managers	As frequently as possible	13	195
Business Professional	As frequently as possible	3	24
IT Professional	5	4	47
Prototype Development	3	on going	13



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**Adhoc Courses**

**Customised C++ Course  
for PSA**

**22 participants**



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**Annex 3 :**  
**JSAIC Diploma**  
**in Intelligent Systems**



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# DIPLOMA IN

# INTELLIGENT SYSTEMS



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*This is to certify that*  
*Tan Teok Wee*  
*has successfully completed the*  
*requirements of the course*  
*and is awarded the*  
**JSAIC Diploma In Intelligent Systems**  
*(with Distinction)*  
*Dated this 28 April of 1992*

**Ko Kheng Hwa**  
Chief Executive  
National Computer Board

**Saw Ken Wye**  
Deputy Director  
JSAIC

**Teppei Kuroda**  
Chief Advisor  
JSAIC



(Detailed transcript of course results has been issued to the student)

A collaboration between the National Computer Board (NCB) and the Japan International Cooperation Agency (JICA).

**Annex 4 :**

**JSAIC Seminars**



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# Seminars

	No. of Participants
JSAIC Seminar Series	4 times 384
Company Sponsored Seminars	5 times 175
Others seminars/Symposiums (including SPICIS '92)	6 times 732
Talks/Presentations	5 times 367



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## JSAIC Seminars

	Date	No. of Participants	Duration	Trg Days
Fuzzy Logic & Its Applications	12 Jun 92	117	0.5	58.5
Tron	21 Sep 92	86	0.5	43
Advanced AI Technologies	13 Nov 92	104	0.5	52
AI Applications in Education Design & Scheduling	12 Mar 93	77	0.5	38.5
<b>Total</b>		<b>384</b>		<b>192</b>

## Other Seminar/Symposium

	Date	No. of Participants	Duration	Trg Days
SPICIS '92	28 Sep 92 - 1 Oct 92	253	3	759
Neural Networks in Financial Applications	28 Jul 92	30	0.5	15
Neural Networks in Finance	29 Oct 92	110	0.5	55
IT Beyond 2000	11 Feb 93	198	1	198
Natural Language Processing	8 Mar 93	21	0.5	10.5
Constraint Programming Seminar	12 & 13 May 93	120	0.5	60
<b>Total</b>		<b>732</b>		<b>1097.5</b>



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## Company Sponsored Seminar

	Date	No. of Participants	Duration	Trg Days
Seminar for MHA	8 Apr 92	12	0.5	6
Seminar for UOB	12 May 92	51	0.5	25.5
Seminar for Great Eastern Life	23 Jul 92	23	0.5	11.5
Seminar for SMRT	31 Oct 92	25	0.5	12.5
Seminar for AT & T	24 Mar 93	64	0.5	32
<b>Total</b>		<b>175</b>		<b>87.5</b>



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## Talk/Presentation

	Date	No. of Participants	Duration	Trg Days
Shell Eastern Presentation	7 Aug 92	10	0.25	2.5
4th Share/Guide Conference	3-4 Sep 92	150	0.25	37.5
CICCPresentation	4 Sep 92	7	0.5	3.5
Intelligent Systems for SCS-AI Chapter	6 & 13 Oct 92	170	0.25	42.5
Nanyang Technological University	8 Jan 93	30	0.25	7.5
<b>Total</b>		<b>367</b>		<b>93.5</b>



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## Seminars/Talks - Accomplished to Date

Seminars	Numbers Conducted (June 1993)	Number of People Attended (June 1993)
JSAIC Seminars Series	11	1049
Half-day Seminars to Company	9	424
Invited Talks	7	375
Workshop & Symposium	6	579
<b>Total</b>	<b>33</b>	<b>2427</b>

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**Annex 5 :**

**Activities Undertaken/ROD targets**



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Frequency of Programmes A, B, C and D and the number of participants for FY 91, 92, 93 and 94.

	FY 91		FY 92		FY 93			FY94
	ROD	Actual	ROD	Actual	ROD	Plan	To Date	ROD
Program A  No. of A Students : [20]	as frequently as possible	5  [79]	as frequently as possible	5  [67]	as frequently as possible	7	4  [57]	as frequently as possible
Program B  No. of Students : [12]	1	1  [8]	1	2  [29]	1	3	1  [10]	2
Program C  No. of Students : [12]	as frequently as possible	1  [7]	as frequently as possible	2  [17]	as frequently as possible	2	0	as frequently as possible
Program D  No. of Students : [12]	1	0	0	2  [13]	1	2	2	1
Seminars  No. of Participant	0	13  [1022]	0	20  [1658]	0	4	1  [120]	0

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Annex 6 :

Manpower Plan



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**Manpower**

	FY 90		FY 91		FY 92		FY 93		FY 94		
	ROD	Act	ROD	Act	ROD	Act	ROD	Plan	To date	ROD	Plan
Director	1	1	1	1	1	1	1	1	1	1	1
Head (Admin)	1	1	1	1	1	1	1	1	1	1	1
Head (Technical)	1	1	1	1	1	1	1	1	1	1	1
Instructors	3	4	7	8	9	8	9	10	8	9	10
Industry Liaison Officer	1	-	1	1	1	1	1	1	1	1	1
Systems Administrator/ Technician	3	1	3	1	3	1	3	2	1	3	2
Administrative/Clerical Officer	3	2	4	4	5	4	5	4	4	5	4
<b>Total</b>	<b>13</b>	<b>10</b>	<b>18</b>	<b>17</b>	<b>21</b>	<b>17</b>	<b>21</b>	<b>20</b>	<b>17</b>	<b>21</b>	<b>20</b>
Personnel		1 ]									
HR											
Finance		1 ]									

Paying NCB for service

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**Annex 7 :**  
**Hardware and Software**  
**Acquisition**



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# HARDWARE ACQUISITION (Jul 92 - Jun 93)

## Workstations/Macintoshes/PCs

- Sun SPARClassic 1
- Quadra 800 1
- PC 486 (1.2 GB Hard Disk) 2

## Peripherals

- Japanese Keyboards for NEC workstations 4
- VME Adaptor, SCSI cable for NEC workstations 1
- In-circuit emulator for PC 1
- Video Blaster Interface Card for PC 1

## Networking Equipment/Software

- Ethernet Bridge 1
- Ethernet Cards for PC 3
- Gatorshare software for Macintosh 1



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## SOFTWARE ACQUISITION (Jul 92 - Jun 93)

### AI Shells/Tools & Languages

- WSOS20 (Japanese OS) 4
- Japanese Motif 4
- PDS Bucket 4
- X-SDB (for WSOS20) 4
- KANAE for NEC (Japanese ver) 4
- YUZU for NEC (Japanese ver) 2
- EXCORE/KWB for NEC (Japanese ver) 3
- PlanBox for NEC 2
- Decision Box (Japanese ver) for NEC 1
- EXWORK (Japanese ver) for NEC 3



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## SOFTWARE ACQUISITION (Jul 92 - Jun 93)

### AI Shells/Tools & Languages

- Softbench C++ Ver 3.0 Upgrade for HP 1
- Motif Graphical User Interface for Sun 1
- C++ Development Environment for Sun 1
- ART-IM/CBR Express for PC 1
- Professional II for PC 1
- ParcPlace Objectworks/Smalltalk for PC 1
- Eiffel for Macintoshes 1
- Borland C++ and Application Framework 3.1 upgrade 10
- Microsoft C/C++ Development 1



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**SOFTWARE ACQUISITION**  
(Jul 92 - Jun 93)

Other Software

- Lotus 123 for Windows R1.1 Upgrade users 10
- dBASE IV 1.5 Upgrade users 10
- WordPerfect 5.2 for Windows users 10
- Windows 3.1 Upgrade & Windows 3.1 20
- DOS 5.0 Upgrade 20



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**Annex 8 :**

**JSAIC's Local Budget**



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ISAIC's Local Budget

Vote	90/91		91/92		92/93		93/94	
	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Budget
Expenditure on Manpower (EOM) Includes: Staff salaries, bonus, CPF contributions	\$306,000	\$266,000	\$850,000	\$770,000	\$930,000	\$960,000	\$1,010,000	
Other Operating Expenditure (OOE) Includes: Rental of Office Maintenance of computer equipment Publicity, Stationery & other office administration support services Computer purchases	\$540,000	\$203,000	\$1,197,900	\$1,050,000	\$1,500,000	\$1,200,000	\$1,497,000	
	\$244,000	\$1,300	\$654,000	\$654,000	\$654,000	\$654,000	\$654,000	
	\$0	\$0	\$115,000	\$93,000	\$330,000	\$241,000	\$256,000	
	\$296,000	\$201,700	\$428,000	\$303,000	\$516,000	\$305,000	\$472,000	
	\$0	\$0	\$0	\$0	\$0	\$0	\$115,000	
Development Expenditure (DE) Computer purchases Office renovation & furniture	\$886,000	\$460,000	\$441,000	\$465,000	\$150,000	\$128,000	0	
<b>Total</b>	<b>\$1,732,000</b>	<b>\$929,000</b>	<b>\$2,488,900</b>	<b>\$2,285,000</b>	<b>\$2,580,000</b>	<b>\$2,288,000</b>	<b>\$2,507,000</b>	

**Annex 9 :**  
**Short-Term Experts**



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**SHORT-TERM EXPERTS**  
**(TECHNOLOGY TRANSFER)**

Topic	Japanese Experts
1. Graphics-based Applications (Mapping system for PTAS)	Y. Muto
2. CAD (for PWD's BPPS)	S. Watanabe
3. NN for Financial Application	M. Asogawa
4. Intelligent Information Retrieval (for TDB's IHSCS)	H. Shimazu
5. Programming In CLOS	M. Ida
6. X Win Prog & Techniques	T. Arai
7. Fuzzy Logic (for Omron's IFT)	K. Urasaki
8. Computer Network	K. Tsuchi
9. Natural Language Processing	S. Ishizaki

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## SHORT-TERM EXPERTS (SEMINARS)

Topic	Japanese Experts	Singapore Speakers
1. Fuzzy Logic And Its Applications	H Akahori M. Umano	Omron HIE
2. TRON Project	K Sakamura T. Muto	
3. Advanced AI Technologies (CBR & Constraint Prog)	S. Kobayashi A. Aiba	ITI
4. AI Applications in Education Design and Scheduling	A. Ouchi T. Utagawa	ITI

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Annex 10 :

Workplan



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**Workplan for FY 93/94**

Courses	No. of times
Manager's Course	7
Business Professional's Course	2
IT Professional's Course	2 (Part-time)
Prototyping Course	1 (Full-time) on going



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**Workplan for FY 93/94**

**Seminars**

JSAIC Seminar Series	4
Company/End-User Series	4
Talks/Presentations	6

**Symposium on Intelligent Systems Applications Nov '93**



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JSAIC EVENTS FOR MARKETING, 1993/94

	1993												1994				
	April	May	June	July	August	September	October	November	December	January	February	March	April	May			
<b>Training Programmes</b>	12 19 26 M M M	3 10 17 24 31 M M M M M	7 14 21 28 M M M M	5 12 19 26 M M M M	2 9 16 23 30 M M M M M	6 13 20 27 M M M M M	4 11 18 25 M M M M M	1 8 15 22 29 M M M M M	13 20 27 M M M	3 10 17 24 31 M M M M M	7 14 21 28 M M M M	5 12 19 26 M M M M	3 10 17 24 31 M M M M M	7 14 21 28 M M M M			
IS for Managers	1, 7, 8, 9 Apr ■ 14-16 Apr	■ 3-5 May		■ 14-16 Jul		■ 1-3 Aug	■ 1-3 Oct			■ 15-14 Jan							
IS in Public Administration					■ 14-16 Jul	■ 1-3 Aug	■ 1-3 Oct										
IS for Business Professionals					■ 25-27 Aug	■ 25-27 Aug	■ 25-27 Aug										
IS for IT Professionals (FT)					■ 25-27 Aug	■ 25-27 Aug	■ 25-27 Aug										
IS for IT Professionals (FT)		■ 3 May-6 Aug				■ 2 Sept-6 Mar '94				■ 1 Mar-24 Sep							
Prototyping IS		■ May			◇ Aug			■ Nov		◇ Feb							
<b>Newspaper Advertisement/AlinaI</b>																	
IS for Managers		◇ 5 May	■ 17 June		◇ 25 Aug	■ 15 Sept		◇ 10 Nov		◇ 23 Feb		■ 16 May					
IS for Business Professionals		◇ 5 May	◇ 7 Jul	■ 3 Aug				◇ 20 Nov		■ 2 Feb							
IS for IT Professionals (FT)		◇ 5 May						◇ 10 Nov									
IS for IT Professionals (FT)								◇ 10 Nov									
<b>JSAIC Mailers</b>																	
IS for Managers		■ 14 June	◇ 20 June			◇ 10 Aug	■ 21 Sept	◇ 10 Nov	■ 7 Dec		■ 24 Feb		◇ 16 May				
IS for Business Professionals			■ 12 Jul	■ 28 Jul						■ 10 Jan	■ 26 Jan						
IS for IT Professionals (FT)		■ 14 June		■ 32 Jul				◇ 10 Nov		■ 10 Jan							
IS for IT Professionals (FT)								◇ 10 Nov		◇ 10 Jan							
<b>SCS Mailers</b>																	
IS for IT Professionals (FT)		■ 15 June						◇ 10 Nov									
IS for IT Professionals (FT)										■ 10 Jan							

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JSAIC EVENTS FOR MARKETING, 1993/94

	1993												1994				
	April	May	June	July	August	September	October	November	December	January	February	March	April	May			
JSAIC SEMINAR SERIES																	
Japan's Initiatives:80's & 90's																	
Genetic Algorithms																	
Multi-Media & AI in Edn																	
AI in Transportation																	
LONG TERM MARKETING																	
Invited Talks																	
AI Post (Newsletter)																	
Market Survey																	
MASS MARKETING																	
Course Brochure																	
Company/End Users Seminars																	
Informatics																	
Symposium on IS Applications																	

# COURSE CALENDAR 1992 / 1993

Annex 10

COURSES	1992					1993												
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				■		■			■				■					
2		■						■						■				
3			■								■				■			
4		▶						▶				▶		▶				

**Intelligent Systems for Managers**

1

Date: ■ 28 – 30 Oct 92   ■ 13 – 15 Jan 93   ■ 14 – 16 Apr 93   ■ 14 – 16 Jul 93  
 Duration: 3 days  
 Fee: \$600  
 Who should attend: Chief Executive Officers, Directors, Senior Managers, Supervisory and Managerial Personnel.  
 Description: This course aims to enlighten and excite managers on the potential of Intelligent Systems and how it can be used to enhance business competitiveness. With this knowledge, Managers will be in a better position to identify opportunities within their organisation to implement intelligent systems.

**Intelligent Systems for Business Professionals**

2

Date: ■ 19 – 21 Aug 92   ■ 24 – 26 Feb 93   ■ 25 – 27 Aug 93  
 Duration: 3 days  
 Fee: \$600  
 Who should attend: All Business Professionals  
 Description: This course is for business professional to explore how intelligent systems can be exploited to further enhance their business skill. Knowledge is a very precious resource in any organisation. Therefore, business professionals would constantly need to keep ahead by using effective tools to aid them in their work.

**Intelligent Systems for IT Professionals\***

3

Date (Starting from): ■ 1 Sep 92   ■ 3 May 93   ■ 6 Sep 93  
 Duration: 14 Weeks  
 Fee: \$1500  
 Who should attend: IT Professionals  
 Description: This technical programme will empower IT professionals with the expertise needed to identify, design and implement Intelligent Systems. Participants will be taught intelligent systems methodologies and will also be exposed to the different languages and tools used.

**Prototyping Intelligent System\***

4

Date (Starting from): ▶ 17 Aug 92   ▶ 15 Feb 93   ▶ 17 May 93   ▶ 16 Aug 93  
 Duration: 6 Months  
 Fee: \$3000  
 Who should attend: IT Professionals  
 Description: This course will IT and Business Professionals an opportunity to experiment with the technology to see how it can be employed in building "real" systems. Under the guidance of JSAIC's consultants, and with the use of our computing resources, participants will gain valuable experience in building practical intelligent systems.

\*The course is supported under the Critical Resource Programme (CITREP) administered by the NCB/EDB.  
 Company sponsored employees who are Singapore citizens or permanent residents would qualify for a 70% absentee payroll subsidy.

**TRAINING VENUE**  
 JSAIC 75 Science Park Drive, Cintech II #01-01/04, Singapore 0511

For more information, please contact  
 Mr Oliver Tian / Ms Cheryl Lee  
 Tel: 779-3088 Fax: 779-6162

JSAIC is a collaboration between the National Computer Board (NCB) and the Japan International Cooperation Agency (JICA)

## COURSE CALENDAR 1993 / 1994

COURSES	1993					1994																										
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY																		
Intelligent Systems for Managers				■			■			■			■																			
Intelligent Systems for Business Professionals					●						●																					
Diploma in Intelligent Systems* Full-time course		◆												◆																		
Part-time course						◆						◆																				
Prototyping Intelligent Systems*		▲			▲				▲		▲			▲																		
Intelligent Systems for Managers	Date		■ 14 - 16 Jul 93		■ 13 - 15 Oct 93		■ 12 - 14 Jan 94		Duration		3 days		Fee		S\$600		Who should attend		Chief Executive Officers, Directors, Senior Managers, Supervisory and Managerial Personnel.		Description		This course aims to enlighten and excite managers on the potential of Intelligent Systems and how it can be used to enhance business competitiveness. With this knowledge, Managers will be in a better position to identify opportunities within their organisation to implement intelligent systems.									
Intelligent Systems for Business Professionals	Date		● 25 - 27 Aug 93		● 23 - 25 Feb 94		Duration		3 days		Fee		S\$600		Who should attend		All Business Professionals		Description		This course is for business professionals to explore how intelligent systems can be exploited to further enhance their business skill. Knowledge is a very precious resource in any organisation. Therefore, business professionals would constantly need to keep ahead by using effective tools to aid them in their work.											
Diploma in Intelligent Systems*	Full-time course		◆ 3 May - 6 Aug 93		◆ 3 May - 6 Aug 94		Duration		3 months		Part-time course		◆ 2 Sep 93 - 26 Mar 94		◆ 1 Mar - 24 Sep 94		Duration		7 months		Fee		S\$1500		Who should attend		IT Professionals		Description		This technical programme will empower IT professionals with the expertise needed to identify, design and implement Intelligent Systems. Participants will be taught intelligent systems methodologies and will also be exposed to the different languages and tools used.	
Prototyping Intelligent Systems*	Starting Date		▲ May 93		▲ Aug 93		▲ Nov 93		▲ Feb 94		▲ May 94		Duration		6 months		Fee		S\$3000		Who should attend		IT Professionals		Description		This course will provide IT and Business Professionals an opportunity to experiment with the technology to see how it can be employed in building "real" systems. Under the guidance of JSAIC's consultants, and with the use of our computing resources, participants will gain valuable experience in building practical intelligent systems.					

\* The course is supported under the Critical Resource Programme (CITREP) administered by the NCB/EDB.  
Company sponsored employees who are Singapore citizens or permanent residents would qualify for a 70% absentee payroll subsidy.

Training Venue: JSAIC 75 Science Park Drive, Cintech II #01-01/04, Singapore 0511

For more information, please contact the Course Administrator, Tel: 779 3088 Fax: 779 6162

**Annex 11 :**  
**Hardware and Software**  
**Needs FY94**



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### Hardware/Software/Equipment Needs

- Engineering Workstations - 15 nos
- Personal Computers - 15 nos
- Software for Engineering Workstations Purchased
  - operating systems
  - GUI
- Software for Personal Computers Purchased
  - operating systems
  - GUI
- AI tools & shells

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**Hardware/Software/Equipment Needs (Con't)**

- Upgrade of existing PC & Mac software
- Teaching Equipment
- Other Software (case tools/OODBMS)
- Network operating system



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**Annex 12 :**

**Existing JSAIC Hardware  
Software Environment**

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Workstations	Qty
EWS 4800/20 (CISC) with OS/X-windows	21
EWS 4800/60 (CISC) with OS/X-windows	6
EWS 4800/220	1
EWS 4800/230	6
EWS 4800/260	2
Sun Sparc 2GX	2
Sun IPX	1
Sun SparClassic	1
HP Apollo 9000 S400	1
HP 9000/750 CRX	1
HP 9000/720 CRX	1
SONY NEWS 3860	1
SONY NEWS 3410D	1
NeXT Cube	1
<b>TOTAL</b>	<b>46</b>

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**Personal Computers Qty**

NEC PC 386/25	18
NEC PC 386/33E	2
IPC Notebook 386/SX	1
NEC Powermate 486/33	1
PC 486 Compatible (1.2 GB; 32 MB)	2
PC 486 Compatible	5
PC 9801NV (Laptop) - without Harddisk	3
PC 9801 NS-20 (Laptop)	2
PC 9801)	6
<b>TOTAL</b>	<b>40</b>



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**Qty**

Macintosh Classic	9
Macintosh Ilcx	3
Macintosh Ilci	2
Macintosh Ilfx	1
Macintosh LC	2
Macintosh LC II	5
Macintosh LC III	5
Macintosh Quadra 700	2
Macintosh Powerbook (140)	1
Macintosh Powerbook (170)	1
Macintosh Quadra 800	1
<b>TOTAL</b>	<b>32</b>



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**SOFTWARE**  
**(Expert Systems**  
**Shells & Languages)**

**For Workstation**

- \* **Common Lisp** \* **Prolog**
- \* **UTI-LISP** \* **C++**
- \* **NX-LISP** \* **SoftBench C++**
- \* **EXCORE** \* **Open Interface**
- \* **EXCORE/CL** \* **Ilog (Aida, Masai,**  
**Asquel, Pecos)**
- \* **EXCORE/KWB** \* **Pro Kappa**
- \* **DecisionBox** \* **KEE**
- \* **PlanBox**

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**SOFTWARE**  
**(Expert Systems**  
**Shells & Languages)**

For IBM-Compatible Personal Computers

- \* Rocky
- \* Guru
- \* Nexpert
- \* Kappa PC
- \* Level 5 Object
- \* CBR Express
- \* ART/IM
- \* Open Interface
- \* Borland C++ & Application Framework
- \* Smalltalk\IV
- \* Objectworks \ Smalltalk
- \* Goldworks PC
- \* Professional II Neural Network



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**SOFTWARE  
(Expert Systems  
Shells & Languages)**

For Macintosh

- \* Eiffel
- \* Open Interface
- \* MPW  
C/C++/Pascal
- \* Smalltalk\V



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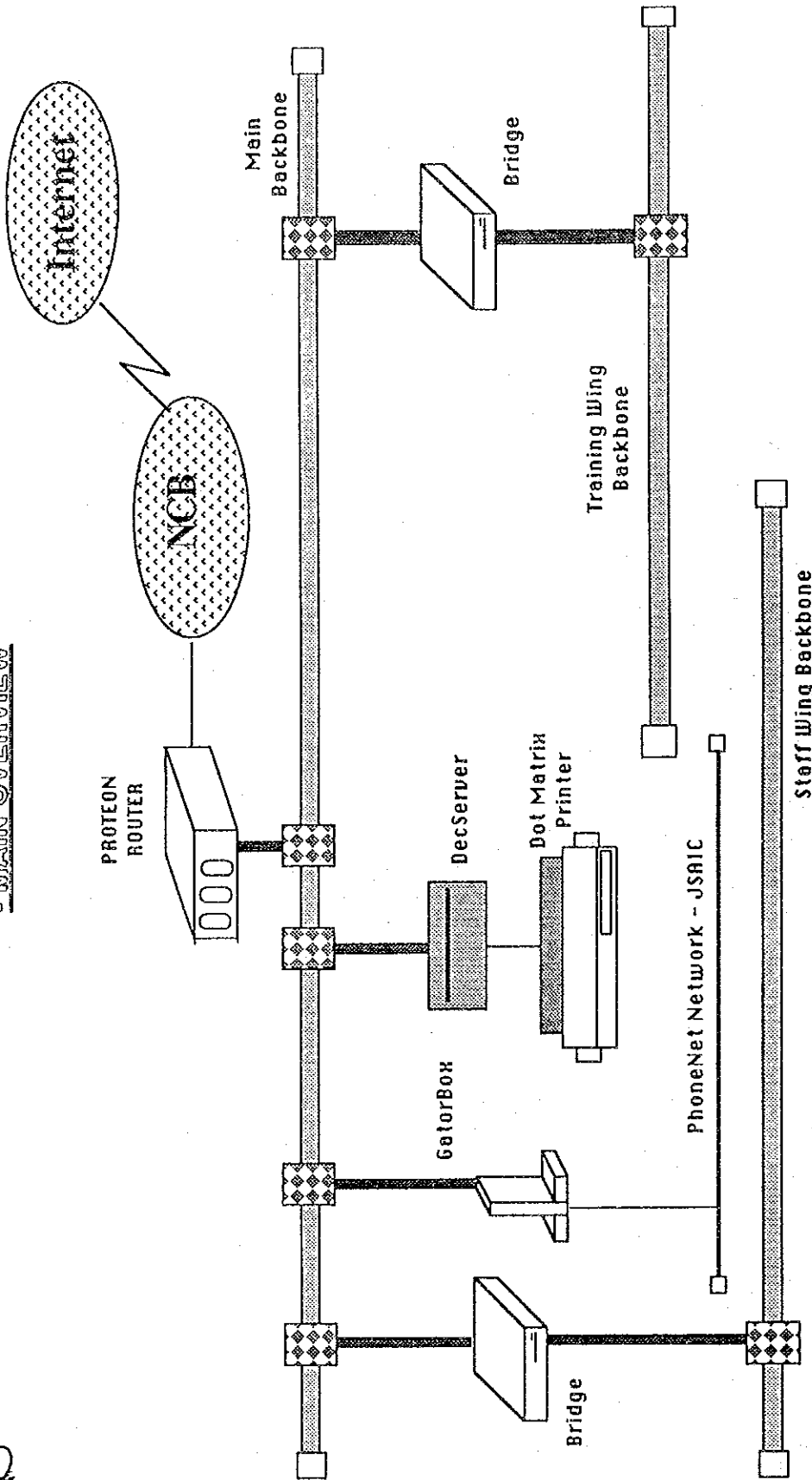
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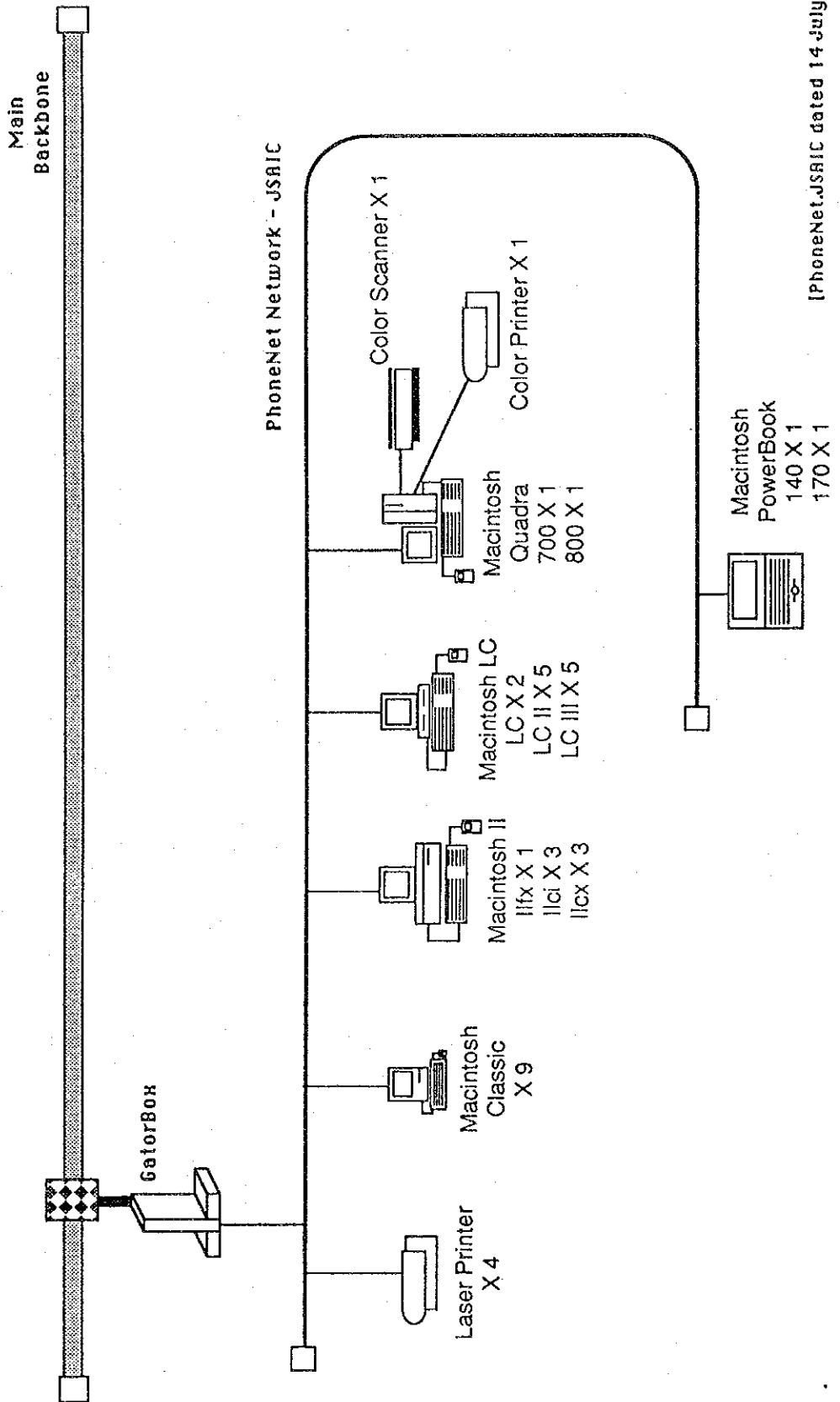
JAPAN-SINGAPORE AI CENTRE  
LOCAL AREA NETWORK  
- MAIN OVERVIEW



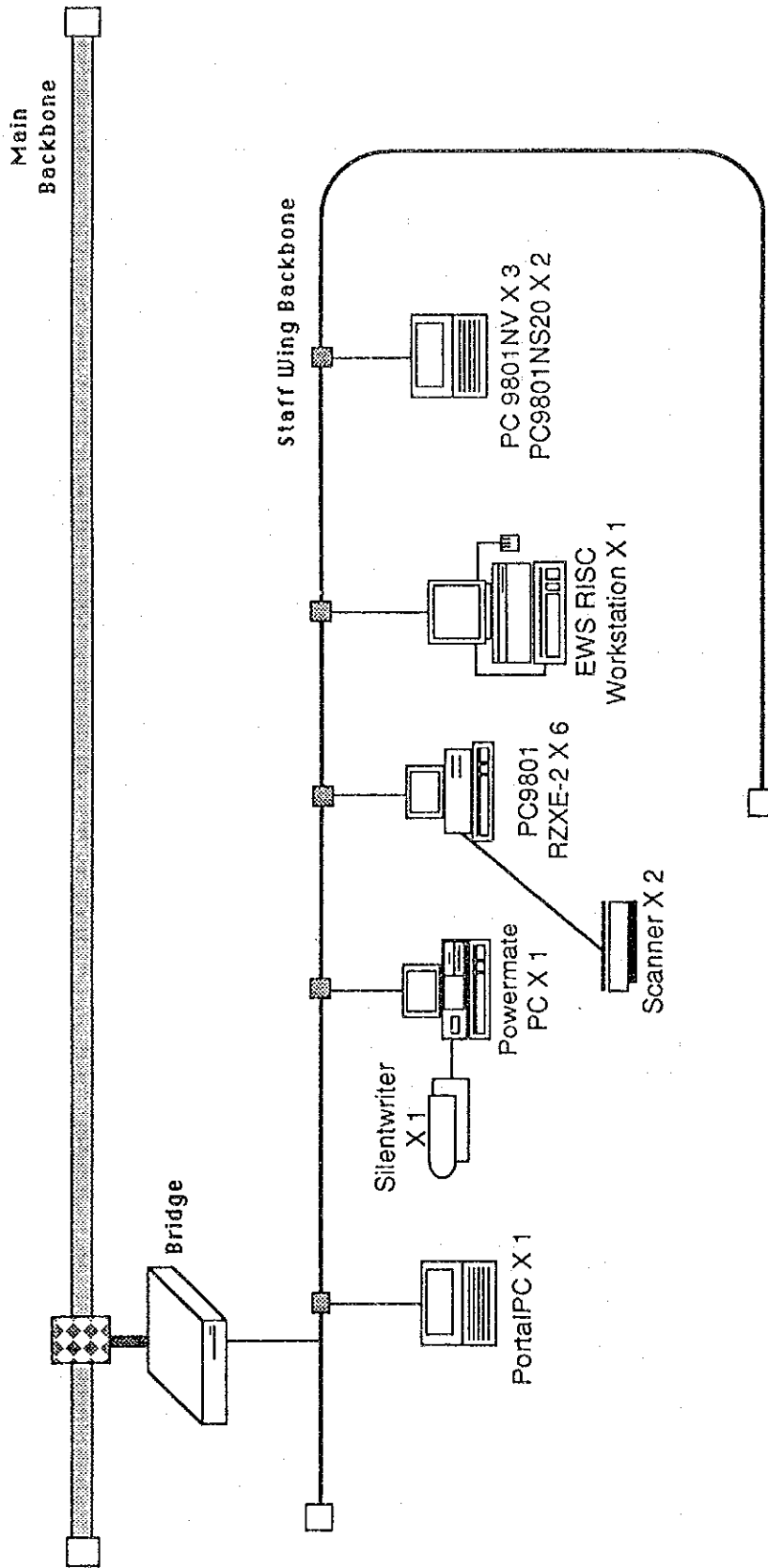
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dated 15 July 93]

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LOCAL AREA NETWORK  
- APPLLETALK ENVIRONMENT



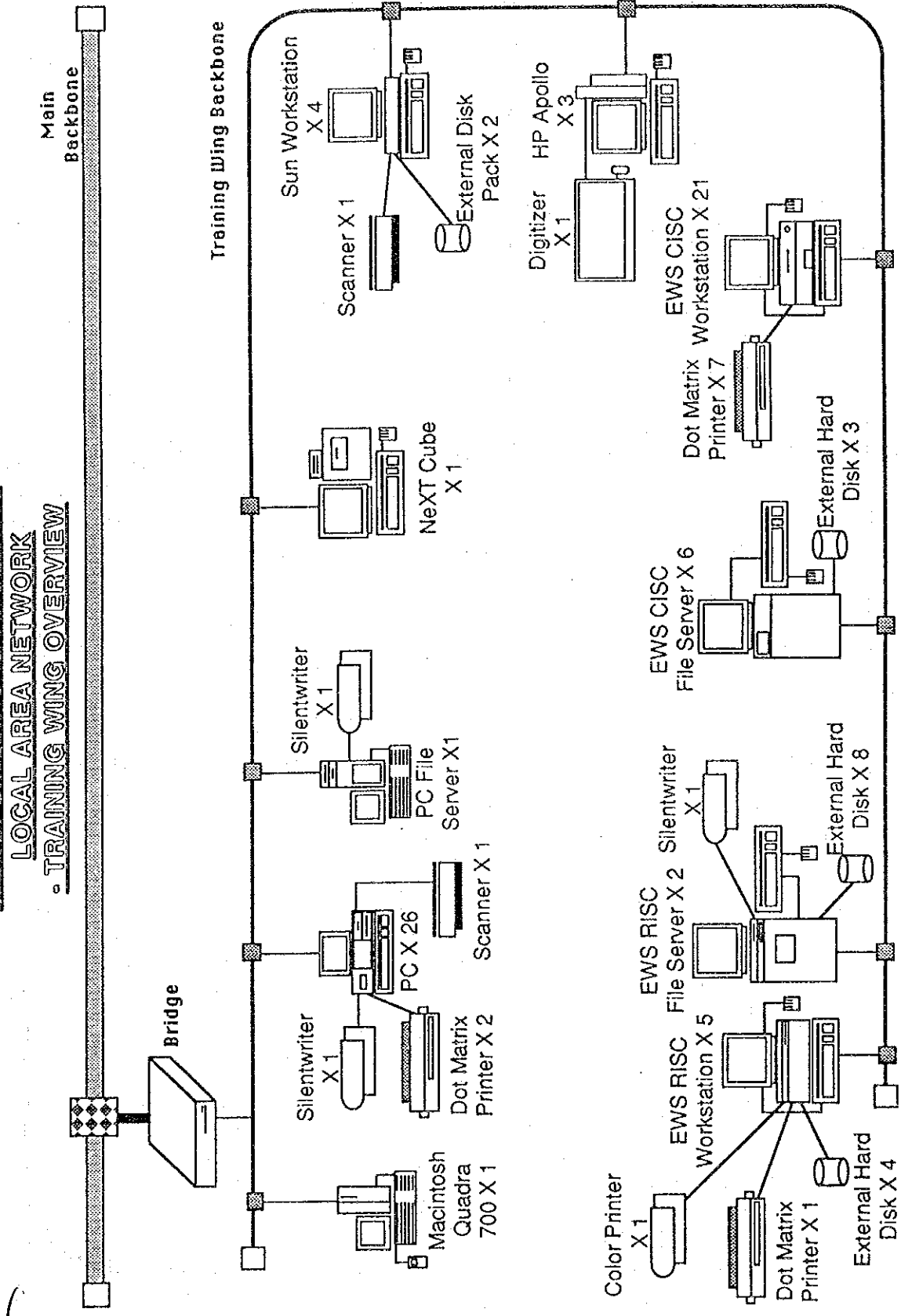
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LOCAL AREA NETWORK  
- STAFF WING OVERVIEW



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LOCAL AREA NETWORK  
- TRAINING WING OVERVIEW



[TRAINING WING dated 14 July 93]

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**Annex 13 :**  
**Counterpart Training**




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## COUNTERPART TRAINING IN JAPAN

<u>Theme</u>	<u>90/91</u> Year 1	<u>91/92</u> Year 2	<u>92/93</u> Year 3	<u>93/94</u> Year 4	<u>94/95</u> Year 5
AI Concepts	1 week	Nil	Nil	Nil	Nil
AI Languages	4 weeks	2 weeks	Nil	Nil	Nil
ES Shells	2 weeks	2 weeks	Nil	Nil	Nil
Classroom Projects	3 weeks	7 weeks	Nil	Nil	Nil
R&D Labs Attachment :					
Simple Prototype	Nil	Nil	11 weeks	Nil	Nil
More Complex Prototype	Nil	Nil	Nil	6 months	6 months
Observation study	2 days	1 week	1 week	1 week	1 week


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**Annex 14 :**

**Intellectual Property Rights**



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## Intellectual Property Rights

- Ownership
- Right to use



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## Intellectual Property Rights

- Materials/Software developed by JSAIC  
(Counterpart & Japanese Expert)
- Materials/Software developed jointly by JSAIC  
and its partners  
(Prog D Participants, Ad hoc courses)



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# Intellectual Property Rights (con't)

Item	Ownership
1) Materials/Software developed by JSAIC	100% JSAIC
2) Materials/Software developed by JSAIC & its partners <ul style="list-style-type: none"> <li>- Generic Modules</li> <li>- Knowledgebase</li> </ul>	Joint ownership JSAIC's partner (may give JSAIC right to use )

Note : If 3rd party shells, tools are used, then a separate lisencing agreement must be negotiated with the 3rd party vendor



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## Intellectual Property Rights (Con't)

The right to use

- i) 'as is' (hard copies/object code)
- ii) amend/distribute (soft copies/source codes)
- iii) amend/distribute/sell (soft copies/source codes)



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**Intellectual Property Rights (Con't)**

	Not for profit		Commercial
	JSAIC	JICA	
'as is'	✓	✓	\$
amend / distribute	✓	✓	\$\$
amend / distribute / sell	✓		\$\$\$



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## INTELLECTUAL PROPERTY RIGHTS

	JOINTLY OWNED BY JICA & JSAIC	OWNED BY JSAIC	JOINTLY OWN BY JSAIC & COMPANY	OWNED BY COMPANY	RIGHT TO USE BY JICA	RIGHT TO USE BY JSAIC
COURSEWARE						
COURSE DOCUMENT	●	●				●
TRANSPARENCIES	●	●				●
LECTURE NOTES	●	●				●
EXERCISES	●	●				●
WORKSHOPS	●	●				●
ASSESSMENT PAPERS	●	●				●
JSAIC'S SEMINAR SERIES						
PROCEEDINGS	●	●				●
PROTOTYPES						
PROG D (SYSTEMS)	●	●		●		
PROG D (INTELLECTUAL DATA)			●			
JSAIC'S PROJECTS	●	●			●	
GENERIC LIBRARIES	●	●		●		
SHORT-TERM EXPERTS						
PUBLIC DOMAIN S/W	●	●				
DEMONSTRATION S/W	●	●				
EXPERT'S OWN S/W	●	●				
JOINTLY DEVELOPED S/W	●	●				●
JSAIC'S SOFTWARE						
IIAP PROJECTS	●	●				●
GENERIC TOOLS	●	●				●
OWN PROJECTS	●	●				●



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Annex 15 :

Needs for Follow-Up Project



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# Beyond 1995

## What is JSAIC's role?



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**Review**

- Demand for technology
- Importance/Impact of technology
- Results of project
- Core competencies/capabilities
  - JSAIC
  - Industry/User
- Competency/needs gap



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## Environmental Factors

- IT2000 Masterplan
- IT R&D Review
- Japan-Singapore Partnership Programme
- 'Develop' country status



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## Assistance Required from Japan

1. Provision of Equipment
  - Hardware equipment adequate
  - software must continually be upgraded
  - ¥ 5 million per year for two years



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**Assistance Required from Japan**

2. Dispatch of Japanese Experts
- 2 Long-term experts for two years
  - 12 Short-term experts in the field of advanced AI ( 6 persons per year)



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**Assistance Required from Japan**

- 3. Training in Japan for Singapore Counterparts
  - 3 counterparts are to be sent for a two-week training in Japan per year
  - Total of 6 counterparts



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## Reasons for Follow-up Project

- Increase the number of prototypes and delivery system implementation
- Train counterparts in the more advanced AI technologies
- Smooth transition and wind down of Japanese assistance
- Need to prove to be a leading centre for AI development and deployment.
- Need the critical mass of successful applications
- cultivate a sufficient pool of clients to ensure long term viability.

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