Part 1 - (starts page 3) - Typical Models - Airline Crisis Managent Centre (CMC)

Part 2 - (start page 16) - Airline CMC - Typical Facilities, Equipment etc.

Relevance

Airline Emergency / Crisis Response - Location, Function, Manning, Equipping (Resourcing) etc. - of typical airline *Command*, *Control*, *Co-ordination* and *Communication* (C4) Centres / Systems

Note: The author/owner of this information article is seeking appropriate images of **real** airline crisis management centres, for insertion into this information article. Of particular interest would be images depicting (approximately) the different CMC models discussed in this information article. If anyone is able to assist in this matter, please make email contact at:

info@aviation-erp.com

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Section **1A** / *Part 1* - **Manning Models** - Typical (Airline) Crisis Management Centre

Which type of Airline Command & Control Centre *Manning* Model to Choose?

There are typically **3** main 'manning models' available for airline consideration (as per title above) - choice of which impacts significantly on the decision as to which *type* of (emergency / crisis related) *headquarters based* '*** Command, Control, Co-ordination & Communication** (C4)' *facility* to plan for, establish, operate etc.

> *This facility is generically known herein as a '**C**risis **M**anagement **C**entre' - (CMC)

These manning models are typically based on (normal ops) personnel functional roles and responsibilities - *AND* / *OR* areas of specific (additional) expertise (e.g. humanitarian assistance; crisis communications; emergency call centre etc.) in crisis response ops:

CMC - Model 1

This model uses staff from *functional* airline departments etc. (e.g. aircraft engineering; airport services / ground ops; flight crew; cabin crew; legal; finance; insurance; corporate comms / PR; HR; security; commercial etc.) to *man* and *operate* an associated airline CMC, during a major crisis
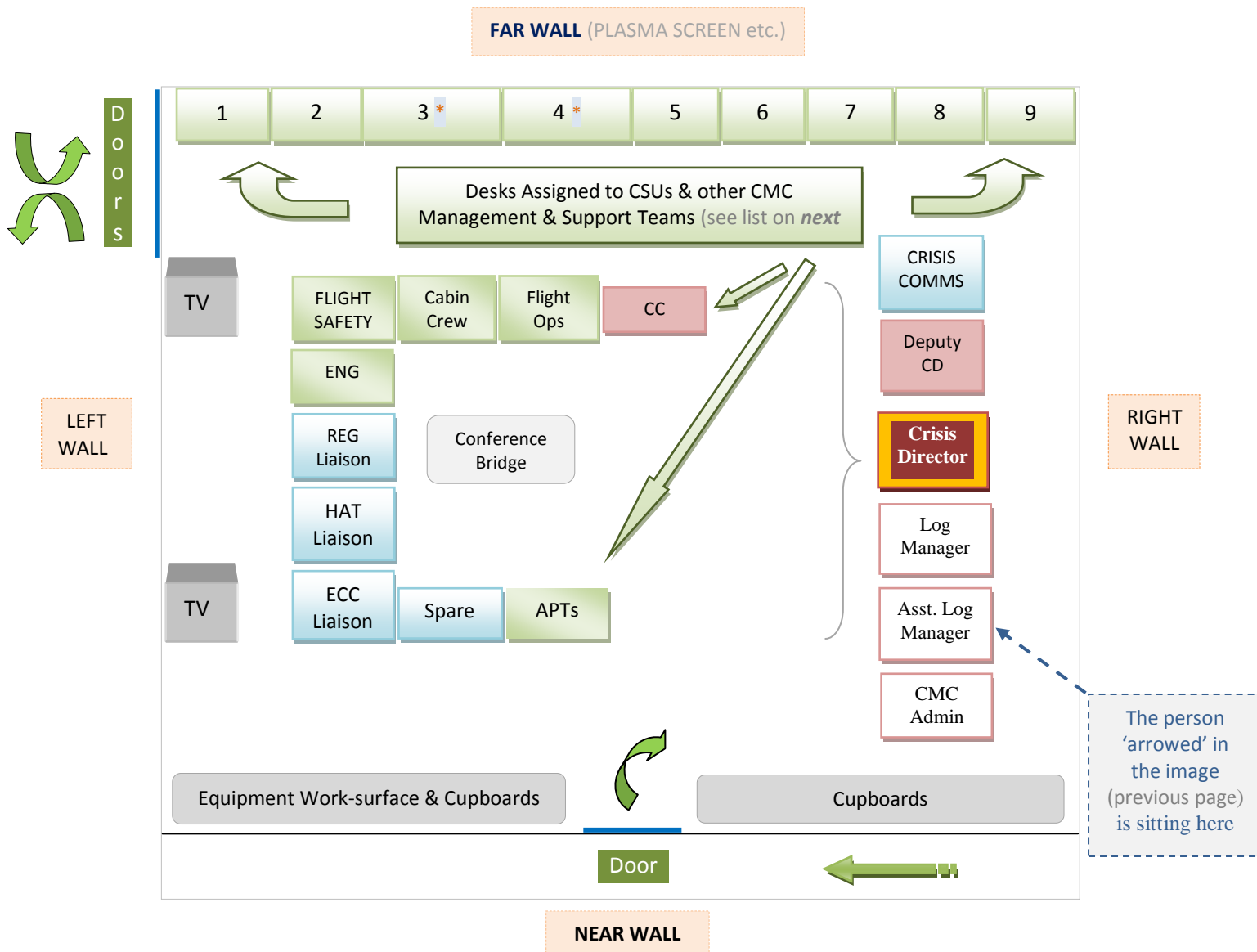
SENIOR managers undertake the above roles i.e. General Manager (Vice President or 'Head of' or similar) and upwards (e.g. typically Director and / or Senior Vice President and / or similar) - with the 'top manager' (CEO / Chief Executive or similar) typically taking on the lead CMC role of *'Crisis Director'* (or equivalent title) i.e. he / she is in *overall* (strategic) charge of *ALL* C4 aspects of the airline's *ENTIRE* crisis response effort

The main *advantage* of this model 1 is that CMC operation is conducted via a complete 'set' of the airline's most senior managers

……………… the main *disadvantages* are:

- '*Too many Chiefs and not enough Indians*' in the CMC

- Too many people in the CMC (e.g. potential problems with space; noise level; confusion etc.)

- Airline departments / business units etc. potentially left without direction, due their 'bosses' being deployed to the CMC - thus 'normal' ops + any associated ** 'disrupted / business continuity' ops might suffer accordingly (i.e. due lack of adequate leadership / oversight etc.)

  ** *In the context used herein*, disrupted (possibly severely disrupted) operations are typically a direct consequence of a catastrophic aircraft accident - particularly if the accident airline operates a 'hub and spoke' system and the accident closes down the / a main hub for several days or more

- Further adverse impact on departments / business units (and thus further adversely affecting 'normal and disrupted' airline ops) as the 'deputies' to the 'leaders' (referred to above) also need to take their turn in CMC 24 hour shift manning (assuming 12 hour back to back shifts for days………………… and possibly even weeks!)

- Heavy on manpower resources - consequently not appropriate for smaller airlines

- It can be 'difficult', for a variety of reasons, to get 'senior' managers to attend the necessary / associated pre-training and pre-exercising - leading to a potential 'lack of CMC expertise, knowledge, currency etc.'

CMC - Model 1A

This is a more practical variation of Model 1 as, apart from the Crisis Director and a small (2 or 3 person) *senior* manager team, the CMC is typically manned by *middle* to *junior level managers* - drawn from trained / exercised *'Crisis Support Units - CSU'* (See 'CSU' definition - page 14)

This model typically 'frees up' enough senior managers + deputies etc. to adequately maintain any *concurrent* 'normal ops' whilst also managing any consequential '*disruption* and / or *business continuity*' type issues, thus negating *some* of the major disadvantages of the Model 1 CMC system

This Model 1A system works well if *plenty* of CSU related man-power + adequate facilities (typically the CMC room itself + associated facilities) and equipment (particularly ICT) are readily available / very quickly procurable. Along with this goes provision of an adequate and appropriate budget (applies to other CMC models too)

A typical (**real / actual**) *Model 1A* Crisis Management Centre. See also typical Model 1A schematic (as associated with the above image) on the next page. (Image reproduced with permission of owner)

Typical CRISIS MANAGEMENT CENTRE - Schematic Layout CMC - Model 1A

FAR WALL (PLASMA SCREEN etc.)

| 1 | 2 | 3 * | 4 * | 5 | 6 | 7 | 8 | 9 |

D o o r s

Desks Assigned to CSUs & other CMC Management & Support Teams (see list on *next*

TV

| FLIGHT SAFETY | Cabin Crew | Flight Ops | CC |

CRISIS COMMS

ENG

Deputy CD

LEFT WALL

REG Liaison

Conference Bridge

Crisis Director

RIGHT WALL

HAT Liaison

Log Manager

ECC Liaison | Spare | APTs

TV

Asst. Log Manager

CMC Admin

The person 'arrowed' in the image (previous page) is sitting here

Equipment Work-surface & Cupboards

Cupboards

Door

NEAR WALL

Left Wall = Whiteboards & Clocks   *Right Wall* = Whiteboards, Projector & Screen, Electronic Whiteboard, Clipboards on hooks etc.

Dedicated PC / laptop; landline telephone and *hardcopy* CMC crisis response pack - at each work station

APTs	= Airports CSU	**ECC**	= Emergency Call / Contact / Info Centre Liaison
CD	= Crisis Director	**REG**	= Regulatory & Stakeholder Liaison
CC	= Crisis Controller / Chief of Staff	**HAT**	= HAT Liaison & Support
	CSU	= Crisis Support Unit	

……………………………………… continued from previous page

Schematic Layout **CMC - Model 1A**

Note - the below refers to the block schematic diagram shown on the *previous* page

Desk Allocation - CMC Far Wall (i.e. far wall when looking from CMC 'near wall' door)

Desk 1 Spare

Desk 2 Security CSU (CMC Rep)

Desk 3 * HOTAC, Travel & Transport Support

Desk 4 * Spare / Operations Control Duty Manager (as per actual circumstances 'on the day')

Desk 5 GO-team Support

Desk 6 HR CSU (CMC Rep)

Desk 7 Insurance CSU (CMC Rep)

Desk 8 Legal CSU (CMC Rep)

Desk 9 Finance CSU (CMC Rep)

* = equipped with extra wide screen desktop PC

Note 1 - Model *1A* relies on an airline adopting the '*CSU*' system

Such CSUs **concurrently** man associated crisis response workstations in **both** the CMC and **also** at normal place of work (manpower permitting)

Note 2 - ICT (IT / telecommunications) support for the CMC shall be provided by the **ICT** *(internet, communications and technology)* **Crisis Support Unit** i.e. the CMC hardware, software and telecoms etc. **support** is **very rapidly** available (within 5 minutes maximum) via a call to a designated ICT support team, latter being readily contactable 24H

CMC - Model 2

This model envisages just **ONE** trained and exercised (competent) senior manager (Crisis Director) (preferably Senior Vice President / Director / equivalent level - but exceptionally a minimum of a specifically and appropriately appointed General Manager / Vice President / 'Head of' / equivalent) **in charge of the entire CMC** (per each [typically 12 hour] CMC shift) - and thus also **in charge of** (as delegated by the airline's top manager) **the airline's entire emergency response effort**

He / she is supported by a **relatively small CMC team** (e.g. absolute **maximum** of about 5-8 persons [per CMC shift] for a medium to large sized airline) of trained and exercised (competent) **middle management** staff - all typically / ideally having an appropriate '**operational**' background - whilst additionally being as **'expert'** as it is possible to be in emergency / crisis response matters (via **additional** and **dedicated** training, exercising, self-study etc.), without themselves being dedicated (full-time) emergency / crisis response specialist staff - of the involved airline

CRISIS DIRECTOR - CD

Candidates for the post of (Model 2) **CD** should be personally selected, approved and annually re-approved by the airline's top manager

Said CDs should have full and free authority / autonomy (having been so **pre**-empowered accordingly) to manage the crisis response as they see fit, provided established procedures and processes (as documented in e.g. the airline's emergency / crisis response plan[s]) are used for the necessary guidance. This is not to prevent 'strategic (higher level management) guidance' being provided, when so requested by a CD - or otherwise where exceptional circumstances so require

CDs should receive full initial training and attend all recurrent training related to their emergency / crisis response duties. They should also attend all CMC exercises planned for them. The airline's top manager should regularly monitor / review (with a view to corrective action where required) all of the latter - including attendance requirements, associated compliance, theoretical and practical knowledge levels etc.

SUPPORTING 'EXPERT' STAFF (CRISIS CONTROLLERS - CC)

The (Model 2) supporting staff (referred to herein as '**Crisis Controllers**') are **specially / specifically selected** and **approved** middle level managers, typically (but not always) having the right mix of airline (or equivalent) **operational** (as opposed to administrative, financial and similar etc.) background and experience - combined with the appropriate 'attitude', interpersonal skills etc.

Crisis Controllers undertake **exactly the same** training / exercising as Crisis Directors (i.e. typically training and exercising together) - and are able to deputise for CDs for short periods - as required

The primary function of the Crisis Controller **team** is to continually collect, collate, document and 'manage' all incoming crisis related information, from all and any sources - such that it forms the component parts of a continually updated '**CRISIS BIG PICTURE**'. The latter is, in turn, presented to the CD + his / her deputy + the CMC Log Manager - in the simplest, briefest and most relevant formats available

Based on said 'crisis big picture's' acquisition, retention, regular update etc. - the CD will continually make the command and control decisions required of him / her - in order for the airline to be able to respond / continue to respond adequately and agilely to the on-going emergency / crisis situation

In turn, Crisis Controllers then ensure that such command and control type decisions etc. are rapidly communicated **AND** implemented to / by the appropriate recipients e.g. Crisis Support Units (CSU); airline (and / or airline representative) station staff; specifically contracted 3rd parties etc.

As mentioned, the CMC Model 2 relies on the airline adopting the '*Crisis Support Unit*' system. In such circumstances (i.e. in a Model 2 system) CSUs are * required to operate from their _normal_ business / duty workstations only (i.e. they do **NOT** typically operate from the CMC)

> * Except for certain CSUs required to contribute specialist 'manpower' to any deployed GO Team

A 'log manager' (LM) and 'CMC administrator' (one of each per CMC shift - both operating from the CMC) completes the typical Model 2 CMC team

Note - Where manpower, facilities, budget etc. permit, it is generally advisable (for a number of valid reasons) to accommodate an airline's 'crisis communications [PR] team' in a _separate_ (but ideally nearby) facility (**Crisis Communications Centre**) to that housing the CMC team. However, a senior and appropriately experienced crisis comms manager (controller) should still operate from the CMC itself (even if on a 'part-time' basis) - typically providing associated 'expert advice', liaison & co-ordination duties directly to / with the on-shift CD

The main *disadvantage* of the Model 2 system is the necessity for **CSUs** to typically operate from their _normal_ work locations - when responding to a crisis. This requires establishment and maintenance of reliable, effective, efficient, robust and rapid (two way) liaison, co-ordination and info (communication) flows between CSUs, between CSUs and CMC...........etc. The security and protection of private / sensitive etc. matters is also more difficult to manage in such circumstances
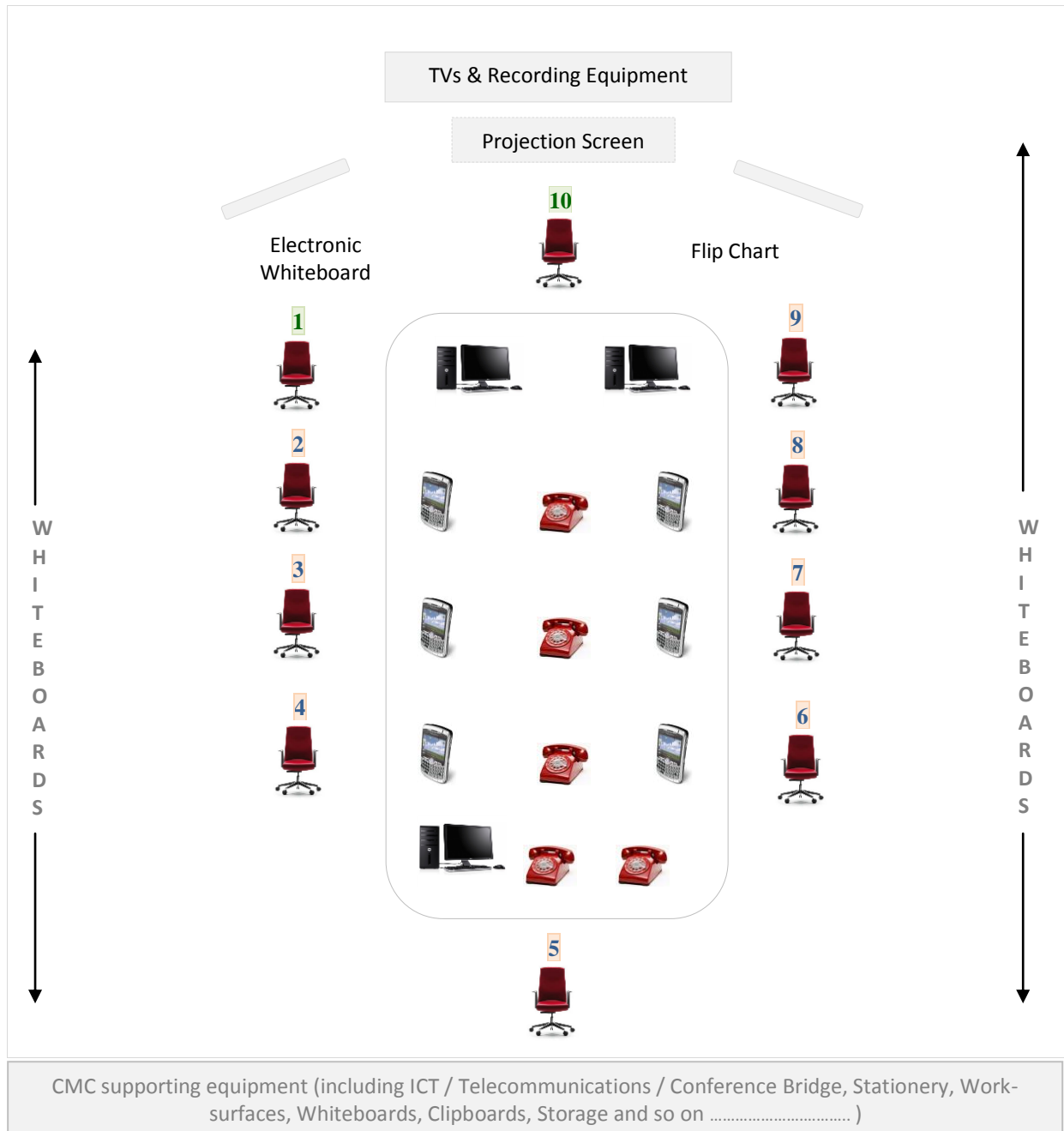
The **advantages** (which _far_ _outweigh_ the disadvantages) are:

- ✓ Simplicity

- ✓ Minimum manpower deployed to the CMC (more space; less noise; less equipment needed)

- ✓ Minimum manpower deployed to the CMC (attractive to smaller [limited resources] airlines)

- ✓ Specially selected teams (background, experience, attitude)

- ✓ Team Expertise (specialised 'additional' training and exercising)

- ✓ CMC Autonomy (CD unilaterally makes most major [airline] decisions re crisis response ops)

- ✓ Team trained and re-trained on a continual cycle

- ✓ Team tested (exercised) and re-tested on a continual cycle

- ✓ Other senior managers (i.e. other than those directly involved in an emergency / crisis response) remain available to oversee concurrent '*normal*' + any associated '*disruption* / *business continuity*' type operations

Typical (Simplified) Crisis Management Centre Layout **CMC Model 2 Schematic**

TVs & Recording Equipment

Projection Screen

10

Electronic Whiteboard

Flip Chart

1

9

2

8

W H I T E B O A R D S

3

7

W H I T E B O A R D S

4

6

5

CMC supporting equipment (including ICT / Telecommunications / Conference Bridge, Stationery, Work-surfaces, Whiteboards, Clipboards, Storage and so on …………………………)

1 = * Spare	**10** = * Spare	**9** = CC 5
2 = Crisis Controller (CC) 3		**8** = CC 4
3 = CC 1 / CMC *Chief of Staff* (COS)		**7** = Crisis Comms Controller
4 = Log Manager / Admin	**5** = *Crisis Director* (CD)	**6** = CC 2 / *Deputy CD*

* Spare CMC seats used on an 'as required' basis - depending on crisis circumstances 'on the day' e.g. typically used for any of additional CCs; 'Guest' CSUs; Parent Group staff, External ERP Expert(s), Other Visitors etc.

Model 2 **CMC / C4 Manning and Typical** (Deliberately very brief as recorded below) **Accountabilities** (Schematic)

Group **Chairman** / Equivalent

Airline's **Accountable Manager**

Crisis **M**anagement **C**entre

(Separate) Crisis Communications Centre — (Airline) **C**risis **D**irector - CD — (Separate) Operations Control Centre

CC1 / COS	1. Manage CMC facility & staff 2. CD's 'Chief of Staff' 3. Miscellaneous / ad hoc issues 4. As directed (AD)
CC2 / Dep. CD	1. Deputise for CD 2. Undertake tasks set by CD 3. Assist other CCs as required (particularly CC1 & CC4) 4. AD
CC3	1. Crisis Support Unit Liaison 2. 'Other' Stakeholder Liaison (including parent Group as applicable) not already covered 3. AD
CC4	1. Station / Airport Liaison 2. GO Team Support 3. Air Accident investigation Liaison. 4. Aircraft Removal / Salvage 5. AD
CC5	1. Contracted 3rd Party (Parties) Liaison 2. Support to Airline's HAT 3. Other airlines / charter / lease etc. liaison 4. AD
LM	1. Maintain CMC Logs 2. Use CMC logs to regularly update CD on crisis 'big picture' 3. AD
ADMIN	1. General CMC administration / service support. 2. Incoming CMC communications filter. 3. CMC tasking follow-up 4. AD

Accountabilities

Note: 'COS' = CMC's Chief of Staff; 'HAT' = Humanitarian (Family / Special etc.) Assistance Team; 'LM' = CMC Log Manager

Model 3

This is an extension of Model 1 - typically having *two*, *(separate)* Command and Control teams (located near to each other but typically *not* co-located) - one team being **STRATEGIC** (usually manned by selected, top management functional appointments). The other team is charged with *support* of the strategic team and for conducting *TACTICAL* command and control operations - based on strategy formulated by said strategic team

The tactical team (as opposed to the 'autonomous and expert' concept of a 'Model 2' CMC) is still (generally) functionally based - but uses managers at a lower grade / level (typically middle to junior level) than those in the strategic centre

> **Model 3 is probably the least efficient of all** in terms of *manpower* & other *resources* use - and is also subject to most of the *disadvantages* of Models 1 & 1A
>
> The main **advantage** of Model 3 (provided that the strategic & tactical teams are not *too* closely co-located) is the ability of the 'senior strategy team' to operate in relative isolation from the rather frantic activity initially expected in the '*tactical*' response facility

Other Models

A small number of other CMC models do exist - which are, in the main, relatively minor variations of one or other of those documented above. They are not mentioned further herein

Which C4 Manning Model to Choose?

There is no simple answer to this question - except to say that airline size, business model, composition, resources (particularly manpower, facilities and budget) etc. will be major considerations. However, some basic guidance follows:

"…………………………For *most* airlines - Model 1A or Model 2 will be the best choices

As to which of these two models might be the '*best*' choice of all, note that *Model 2* requires a larger personnel base (around 2.5 times more) of relatively '*crisis response related expert*' staff (i.e. Crisis Controllers in this case) than *Model 1A* - **which is actually / obviously a distinct advantage in terms of overall crisis response staff expertise & flexibility** e.g. if there is no Crisis Director available (from the CD pool) to undertake e.g. the role of 'Leader GO Team' (which is ABCX Airways SOP) - then the most appropriate 'crisis controller' available would be assigned to this role instead

Note also that lack of the * extra CSU personnel resources and / or larger CMC facility resource (*both* would be needed by a Model 1A system) - may *also* dictate that Model 2 is the **ONLY** choice for smaller and / or less well-resourced airlines - particularly in terms of manpower

* Reminder - *Model 1A* requires CSUs to *concurrently* man associated crisis response workstations in *both* the CMC *and also* at most normal places of work

In a *Model 2* system, CSUs do *not* operate from the CMC (they typically operate from 'normal business' locations instead) - thus considerably lowering CMC manpower demands overall - *thereby contributing to improvement of any associated business continuity activities / outcomes*

Consequently, **Model 2** *probably takes the lead* over Model 1A - as '**best choice of all**'

……….

Which C4 Manning Model is used in *this* Guideline Document?

This guideline (the document you are now reading) uses a **Model 2** CMC as its basis

Note 1 - An equivalent Model 1A CMC guideline document and CMC facility can be produced (as required by the user) by adapting the Model 2 version (as referred to / used herein). The latter should be a relatively straightforward task e.g. instead of a Crisis Director and around five or so Crisis Controllers managing the airline CMC (*as per Model 2*) – the Model 1A might have instead e.g.

- A Crisis Director

- A deputy Crisis Director

- One or two Crisis Controllers (with more as an option)

- A Crisis Communications Controller

- *Full CSU representation* and other staff *actually in the CMC* - supporting all of the above

- *Additional CSU representation* at their 'normal business' workstations (i.e. not in the CMC)

(In contrast [it will be recalled] CSUs do *not* operate from the CMC in a *Model 2* [they operate from their *normal places of work* instead])

The airline's Crisis Communications Centre should ideally still be separate from the CMC (but close by)

Note that most Model 2 checklists (contained in the 'parent document' mentioned further above) will also apply equally to Model 1A - *with appropriate adaptation* - particularly with regard to whom they are assigned e.g. (in a Model 1A) to appropriate CSU staff *instead* of Crisis Controllers

Note 2 - It will typically *not* be possible to adapt the *Model 2* CMC to *Model 1* or *Model 3* CMC requirements
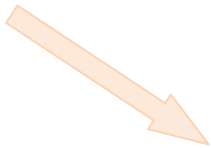
APPROPRIATE 'REAL / ACTUAL' EXAMPLEs of CMC IMAGES ARE REQUIRED FOR INSERTION HERE
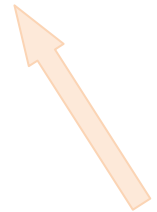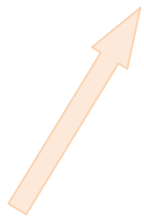
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If anyone is able to assist in this matter, please make email contact at:

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DEFINITION - **Crisis Support Unit** - (CSU)

The term '***Crisis Support Unit***' is used herein to describe elements (staff) comprising an airline's various departments / business units etc. (typically [but not always] located / working at and / or near airline HQ location) - having identified, (direct or indirect / greater or lesser) roles and responsibilities to play, in response to a catastrophic aircraft accident or similar impact emergency / crisis / incident

CSU staff roles and responsibilities are typically (but not always) related ***directly*** to what the CSU's parent department / business unit is responsible for during ***normal*** (day to day) airline operations

Typical CSUs include………………….Flight Operations; Customer Services / Service Delivery (including cabin-crew); Operations Control Centre; Airports Services (Ground Ops); Finance; Legal; Insurance; Safety (flight and ground); Security; Aircraft Engineering (Maintenance); Staff / Industry Travel; HR; Commercial; Corporate Communications / PR etc. There are more!

Ideally, every airline HQ department / business unit with CSU responsibilities (which is the vast majority of them) might be imagined to be "virtually" divided into two sections during crisis response ops, with one section (**non**-CSU) looking after ***normal*** (and possibly ***disrupted / business continuity***) operations, whilst the other (the **CSU**) focuses its efforts on that department's / business unit's ***emergency / crisis response ops***

CSU staff can typically assist in the manning and operation of an airline's Crisis Management Centre (CMC) at time of crisis - under the leadership of a Crisis Director …………………………………… AND / OR conduct emergency / crisis response operations from their normal place of work. Some CSUs are expected to deploy staff as part of an airline's ***GO Team*** - as appropriate

Note - a ***very*** small number of airline HQ departments might ***not*** be required to form a CSU in the sense described just above

For example, an airline's ***Quality Department*** generally has no obvious crisis response role (related to its 'normal' day to day business) during ***actual*** response to a catastrophic aircraft accident. Note however, that Quality Department staff can still assume non-CSU '* generic' crisis response roles such as e.g. *'CMC - Log Manager'*; *'CMC - Emergency Call Centre Liaison'*; *'CMC - GO Team Support'* etc.

* Such crisis response ***generic*** roles are ***not*** typically related to the functional (normal business operations) roles and responsibilities of the departments / business units / person(s) specifically referred to just above

In the context of CMC - Model 1A - CSU responders assigned crisis duties at / near airline HQ - should operate from normal work locations - and most will **ALSO** (additionally) need to provide a rep to the CMC (manpower permitting - which might be problematic?). Similar should apply to the 'tactical' part of a CMC Model 3

In the context of CMC Model 2 - CSU reps assigned crisis duties at / near airline HQ generally operate from ***normal work locations*** **ONLY** at time of crisis (i.e. **not** from the CMC facility). However, close and constant liaison between CSUs & CMC staff (Crisis Controllers for latter) is obviously **ESSENTIAL**

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Section **1A** / *Part 2* - Crisis Management Centre - **Typical Facilities and Equipment used**

Facility

✓ Ideally located (*landside* [i.e. **NOT** airside] *if* airline HQ located at an airport) at airline HQ

✓ Appropriate accommodation facility (accessible 24H; adequate size, secure; private; heating / cooling; near washrooms; near rest facilities; catering readily available etc.)

✓ *Adequate* ICT hardware and software connections (wireless capable) - see next page

✓ *Adequate* No-break / Uninterrupted Power Supply (UPS) available 24H

✓ Geographically separate *backup* (alternate) CMC facility planned for, available, equipped etc.

Fixtures & Fittings

✓ Workstations / desks / chairs etc.

✓ Work surfaces (for equipment)

✓ Storage facilities e.g. cupboards

✓ Wall mounted whiteboards (lots and lots - you can **never** have enough!)

✓ Pre-prepared (template & 'blank' formats) wall mounted 'information' boards (fill in the blanks)

✓ Adequate number of pre-prepared wall mounted (appropriately labelled) clipboards etc.

Documentation & Stationery

✓ Comprehensive CMC Documents Library + similar '*Individual* CMC Workstation Documents Packs' - all readily and quickly available in soft *and* hard copy formats

✓ Comprehensive (soft & hard copy + internal / external) crisis contact directories (phone, email, FAX etc.)

✓ Stationery - lots & lots of all types - especially whiteboard markers and hard copy log sheets

✓ Flipchart(s) etc.

'*Ideal*' List of ICT *and Similar*

- ✓ *Modern* computers (laptops [wireless capable] ideal as they can be moved to separately located CMC backup facility if required) - *one per each CMC workstation*
- ✓ PCs / laptops to have *modern* (recent) & *adequate* operating system + *all relevant applications* (*operational* [functional] and *administrative*) *pre-loaded* as per CMC and airline requirements
- ✓ Dedicated crisis email addresses for all CMC workstation positions (i.e. no use of personal [company / business] emails in general CMC use - **BUT** latter should still be accessible from CMC)
- ✓ Selected company ICT security and similar restrictions lifted (removed) for CMC ICT systems operation e.g. no limits on the size, content etc. of information sent or received by CMC
- ✓ Genuine *high speed* (e.g. fibre) internet access - preferably independent of (in addition to) the airline's 'normal' internet access system
- ✓ *Landline* telephones (*one per CMC workstation* + several CMC spares). If landlines reliant on a local *digital* exchange - then a number of (external) *analogue* landlines also required in CMC
- ✓ Headsets for all landline telephones (quieter CMC environment) (+ equivalent for M. Phones)
- ✓ *Dedicated* CMC mobile / smart phones etc. (In adequate numbers and also being separate from those used by e.g. the GO Team and those issued to staff for 'normal business' purposes)
- ✓ Satellite telephones (2 or 3 - CMC specific - i.e. separate from those used by GO Team)
- ✓ Walkie / talkie (short range) radios - in case of complete, local telephone failure
- ✓ Modern (state of art) Video Conferencing equipment / connections / software etc.
- ✓ PC / laptop etc. connectable overhead projector and related screen(s) (or equivalents)
- ✓ Smart Televisions (at least 2) / equivalent - capable of monitoring all major international news channels (including social media) via a wide variety of inputs
- ✓ Plasma screen(s) - at least 1 (easily & quickly connectable to appropriate source device[s])
- ✓ Modern PC / laptop etc. connectable *electronic* whiteboard (or similar) drawing / writing system etc. with outputs to appropriate (electronic) display systems etc.
- ✓ Adequate supply of 'large capacity' memory sticks / portable hard disk storage units etc.
- ✓ Comprehensive (aviation type crisis specific) Crisis Management Software System
- ✓ A regular, reliable system in place to 'check-out / maintain etc.' all of the above, as required
- ✓ Anything else?

Note 1 - all required user names, passwords etc. to be quickly, easily (but securely) available

Note 2 - all required connections / leads / cables / plugs / adaptors / chargers / spare batteries etc. (in adequate quantities) to be pre-fitted and connected - and / or otherwise quickly and easily available / set up

Note 3 - all required operating instructions (in adequate quantities) to be quickly and easily available (soft and hard copy)

Note 4 - A reasonable stock of required 'consumables' to be maintained at all times e.g. for printers (ink), for FAX etc. A rapid (24H) re-ordering system for same to also be in place

Note 5 - it may be necessary for CMC to store and issue certain equipment, documentation and funds to e.g. the airline GO Team (if / when latter deploys)