



Australian Government
Department of Defence
Defence Science and
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Network Centric Warfare and the New Command & Control: *An Australian Perspective*

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The NCW literature tells us that:

As a result of information technology, a new C2 is emerging in the form of mission command/power to the edge

This new C2 is better translating information into actionable knowledge, thereby improving agility and speed of response

[see for instance, Alberts, Garstka & Stein 1999; Alberts, Garstka & Hayes 2001; Albert & Hayes 2003; Gingrich 2005; Pigeau & McCann 2002]

What does the evidence from the battlespace tell us about these claims?

Data collected from interviews with:

- over 100 Australian Defence Force personnel
- across all ranks and services
- served in the recent conflict in the Middle East

[Collected as part of DSTO's *Human Dimensions of Future Warfighting* Task]



What does the evidence from the battlespace tell us about these claims?

1. Is power to the edge being enabled by:
 - a. Information & communication technologies
 - clarifying commander's intent
 - improving access to decision-making info
 - b. Devolution of authority

2. How is unity/clarity of intent being influenced by working with Coalition, joint forces, non-military parties?



ICTs

Clarifying intent

...no one ever used to do anything based on email but now email is acceptable as an authority...And next thing you know, chat will be too. Except how do you know – is that the admiral on the other end typing it or is it Seaman Bloggs? At least an email comes from the admiral's account...

...could have six or seven chat windows all up at the same time...potential to be overrun by the number of chats...[and] it was, at times, difficult to know if I was being ordered to do something or if it was just general conversation...it was resolved by going back to them and saying “Is this an order? Do you want me to do this?”



ICTs

Improving access to info (and opinions) for decision-making:

...a lot of meetings on board...videoconferencing, collaborative tools...I didn't want to use them...[because] you're actually opening up the opportunity for more people to be involved in the planning, which was going to make the planning more difficult...more than enough people putting their oar in, opening it up even more.”

...in years gone by if you were stuck in the middle of the ocean you'd have no one to talk to if a problem came your way. These days you can email someone or talk to them on the sat phone, straight away...so information is more dynamic...more instant, hopefully the right information quicker...but it's a double-edged sword...your decisions have got to be right and more timely and you can't think of things too much.



Devolution of Authority

Personality-based:

To a large extent [I was autonomous in my decision-making]...I went through two different bosses and two different sets of ways of doing it. My first boss was very much, as long as I gave a technical reason and explained it to him, he would say, “No worries, ----, go for it.” Largely he left me to run my section. The second boss was not quite so like that.

...and so I began to get emails and direct phone calls at 4 in the morning...Gulf time, from my commander...it made me start second-guessing my decision-making processes.



Devolution of Authority

Lack of resources and experience:

...had to try and do a lot on the ground with what they had...would be putting in requests...some of which could be satisfied, some of which couldn't be...So it was “Do the best you can, lads”...So a lot of authority was pushed down...to relatively junior folks...

What authority do we have to make stuff that we've never been trained in...and who's going to say “This is okay”. We're in war contingencies here and a lot of rules can be broken, that's why we sort of just needed the authority...“What role am I playing here? Am I just one of them or can I actually have a role as a higher ranking type person as well?”



An inherent conflict between taking power to the edge and maintaining unity/clarity of intent?

Effective devolution of authority requires
strong command *with* autonomy:

Pretty much a lot of flexibility...the captain was really good. He had a good understanding of how the ---- worked... a lot of the plans that we brought up to him, he would say “Oh, by the way...this might work a little bit better”...so we would amend them and by the end the flexibility was really good...I was let reign and...you get that level of trust that you could form that bond with command as long as you’re doing the right thing.



Inherent conflict between taking power to the edge and maintaining unity/clarity of intent?

Maintaining integrity of information as it passes through
the human communication chain...

...bring reinforcements we're going to advance...

...bring three and four pence, we're going to a dance...

ICTs and devolution of authority are necessary, but
insufficient, requirements for power at the edge

Effectively taking power to the edge requires *awareness of
the strong likelihood* of misinterpretation



Impact of Coalition and Joint Forces on C2

Impact of individual & cultural differences on human perceptions can be ambiguity, uncertainty, outright misinterpretation:

...the same word can mean something completely different

...these responses came right down the chain, and it was vital to take care that the wrong interpretation or a local interpretation of the rules of engagement didn't lead to something escalating beyond the point of which it should have

Slippage is *the norm* as a message moves from one communication partner to the next



The longer and more complex the C2 line,
the greater the opportunities for minor
distortions
and
the greater may be the *sum of* those
distortions

Effective C2

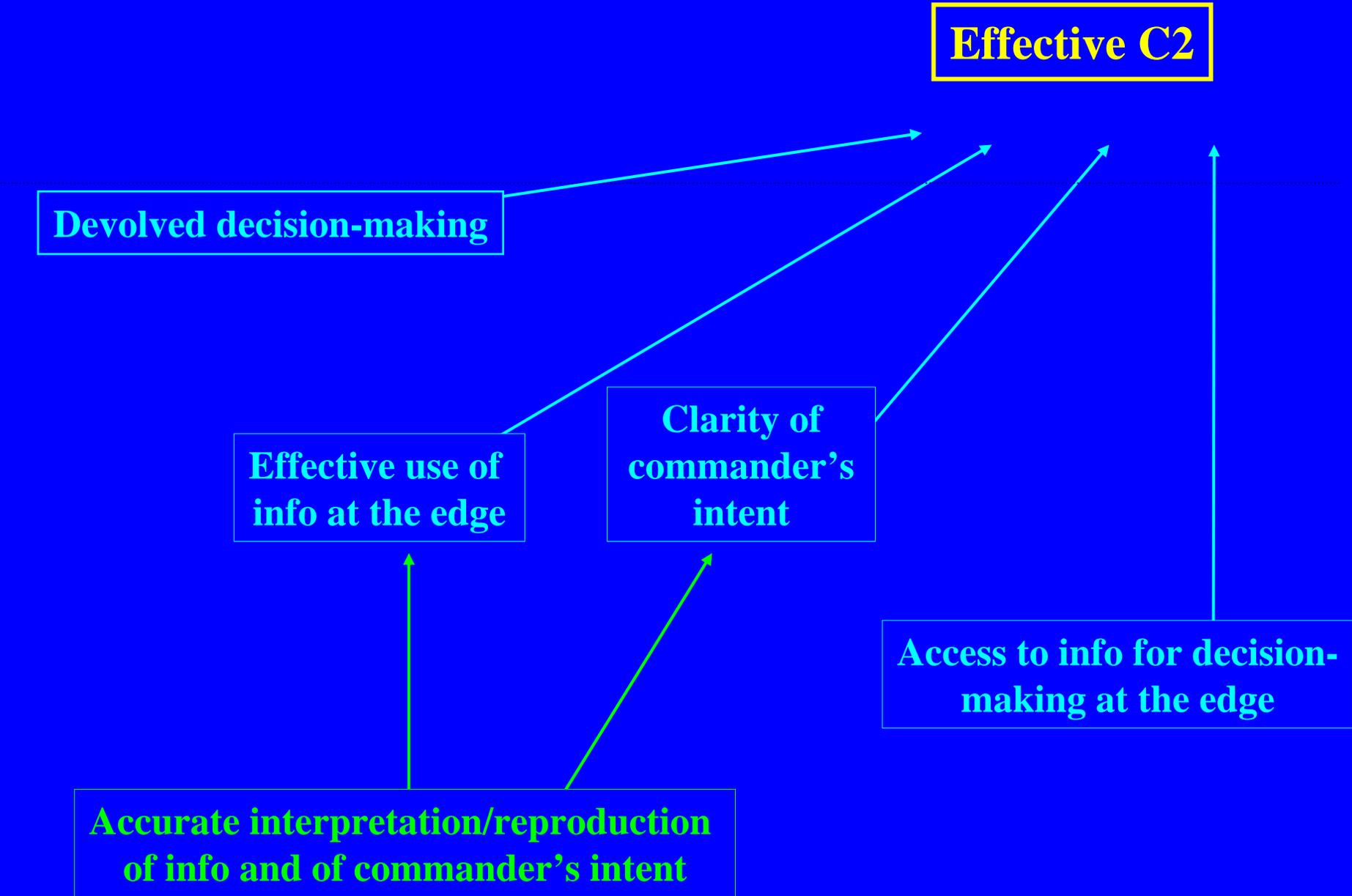
Devolved decision-making

**Effective use of
info at the edge**

**Clarity of
commander's
intent**

**Access to info for decision-
making at the edge**

**Accurate interpretation/reproduction
of info and of commander's intent**



Effective C2

Devolved decision-making

**Effective use of
info at the edge**

**Clarity of
commander's
intent**

**Access to info for decision-
making at the edge**

**Information & Communication
Technologies**

?

Devolved decision-making

**Effective use of
info at the edge**

**Clarity of
intent**

**Access to info for decision-
making at the edge**

**Personnel's
capabilities**

**Commander's
willingness
to devolve**

**Accurate interpretation
of info/intent**

ICTs

Possible future research

Implications for experience and training

**Strong perceptual skills (including tolerance
for ambiguity & uncertainty; awareness of
the existence of multiple realities)**

**Understanding of the Human Information
Processing System and its limitations**

Addressing slippage

Agility & responsiveness

Other factors

Effective C2



Agility & responsiveness

Effective C2

Devolved decision-making

**Effective use of
info at the edge**

**Clarity of
commander's
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**Access to info for decision-
making at the edge**

Effective C2

Devolved decision-making

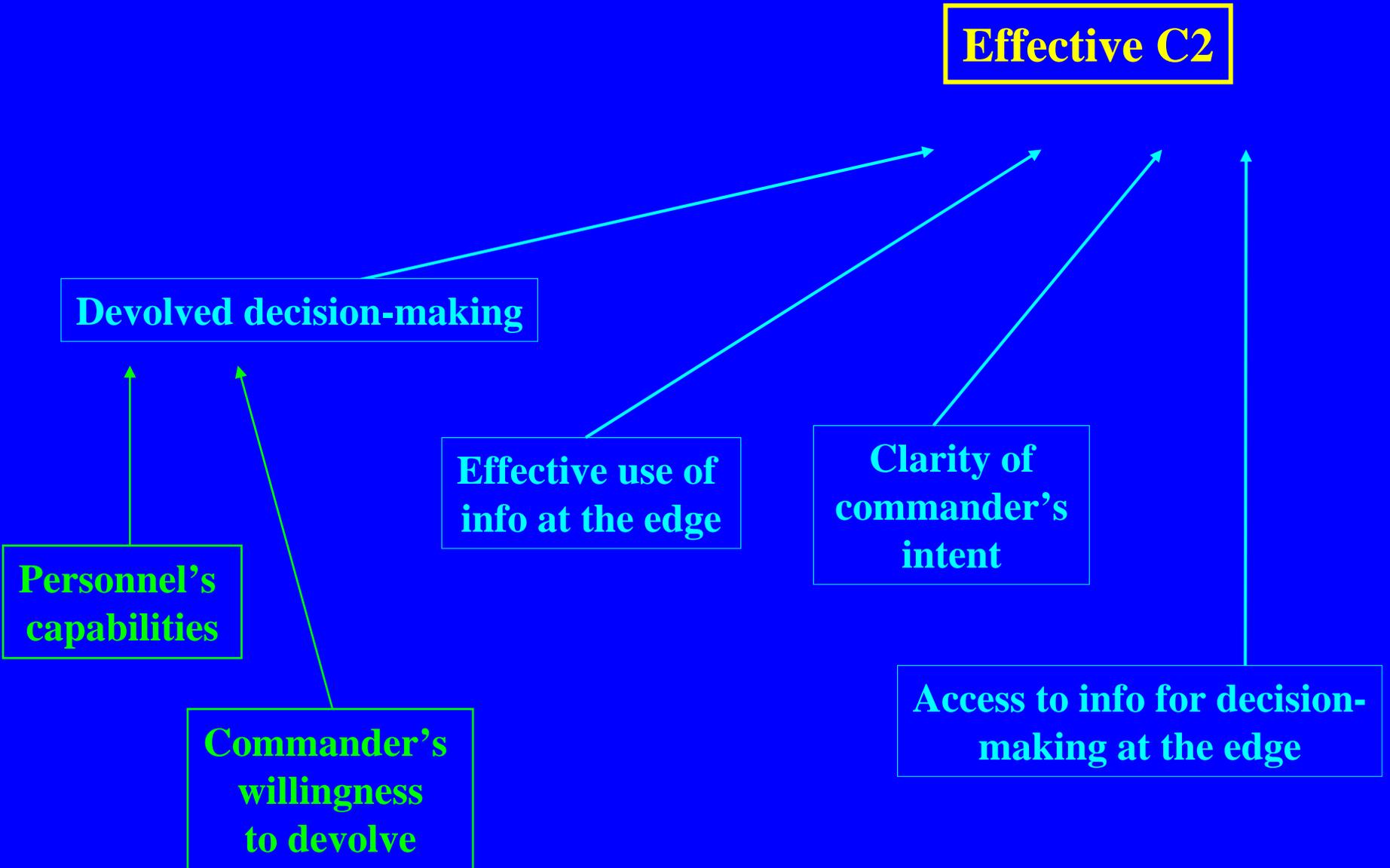
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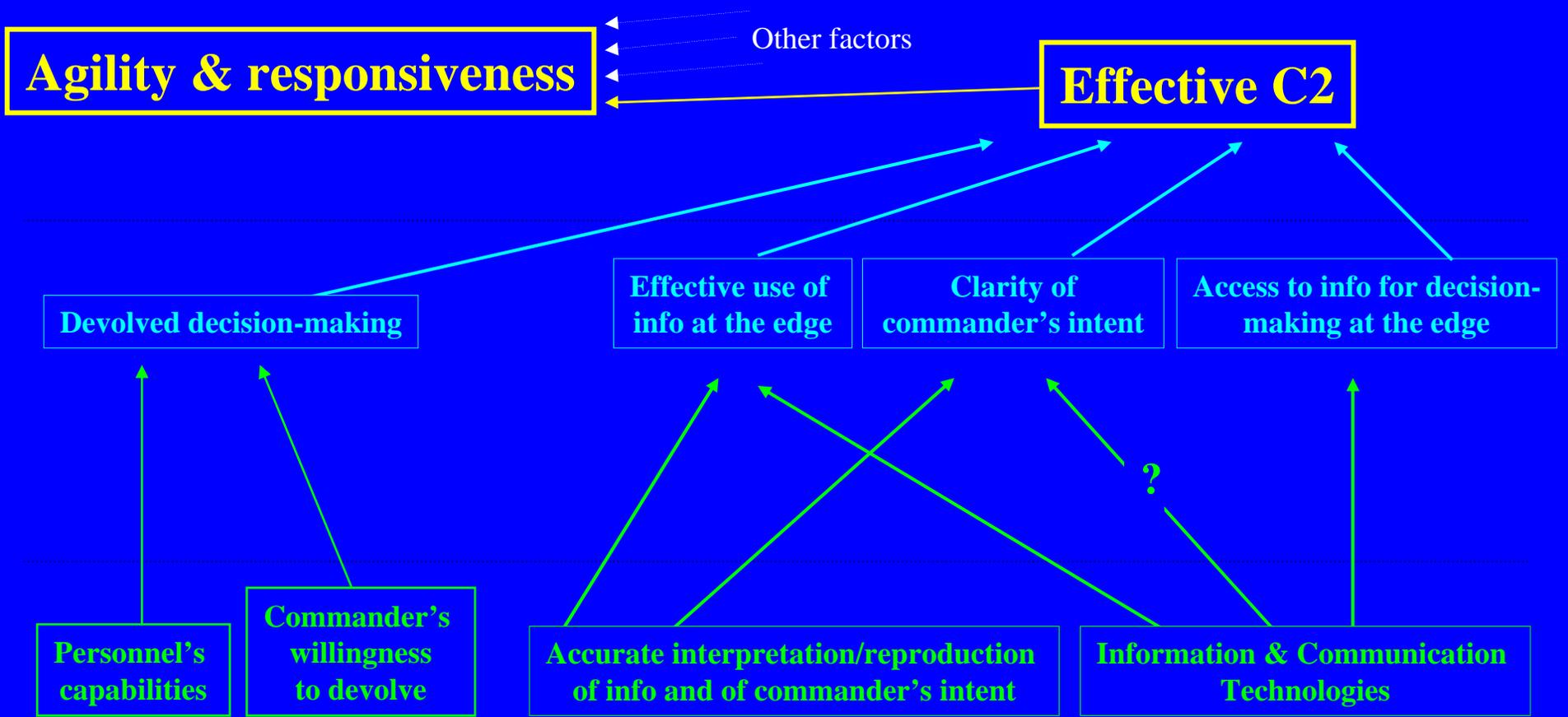
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Possible future research

Implications for experience and training

