Number	LANCS-D4.1-SN-B	A-PI--

Title	Summary Note (SN) for D4.1
Subtitle	Ethical aspects of development **B** : *Convergence of Physical, Mental and Virtual*

PROBLEM		SOLUTION	

Research Note	X		Selected Annotation	

Categories: | | |

Summary:

This note summarises technology convergence and the convergence of physical, mental and virtual phenomena. It lists the main concerns about unprecedented data gathering and new kinds of human-device relations.

CONTEXT

Government sponsored reports and policy briefs from recent years speak of future competitiveness and leadership resulting from the conjoining of nano- bio- information and cognitive (NBIC) technologies. Future developments and deployments of converged technologies will lead to superior physical and mental capabilities of enhanced individuals and ever more military might, although, European views on technology convergence underscore access to opportunities, social engagement and inclusion, more so than individual abilities and military might.

(Key readings include European Commission, 2011; MoD Strategic Trends Programme, 2010; Gunnarsdóttir, 2010; EUROP, 2009c; EUROP, 2009b; EUROP, 2009a; Christensen et al, 2009; Weng, 2009; European Commission, 2008; Lösch, 2006; Bibel et al, 2004; Nordmann, 2004; Roco and Bainbridge, 2002 also von Schomberg, 2011; European Commission, 2007).

FACTS

Technology convergence is ultimately tied in with expectations surrounding potential convergence of physical, mental and virtual phenomena. Expectations are high of the strategic innovation agendas of advanced robotics, including bionics and body/brain implant technologies. European associations of roboticists have compiled an agenda for near-future developments as well as a roboethics agenda to address ELSi issues. Associations of roboticists in the United States have similarly laid the foundations of what the future should look like. European innovation policies on robotics development have cultivated an environment to further the pursuit of these avenues, one of which is the FET flagship development, the Robots Companions for Citizens (RCC) consortium (http://www.robotcompanions.eu).

Expectations of advanced robotics are particularly high for:

- everyday affairs
- entertainment
- military

The anticipated application domains are:

- health-related (therapy / care)
- practical-occupational (efficacy / safety)
- recreational (entertainment / sport / sex)
- body/mind modification (enhancement)
- conflictual circumstance (surveillance / security / battle fields)

COMMENT

Key problems are associated with advanced sensory and data-management capabilities as well as the potential for social and emotional intimacy in human-device relations – suggesting that careful consideration should to be given to matters of:

1. changing perceptions of companionship and human relations (companion robotics)
2. changing perceptions of body, self and/or identity (advanced bionics, body/brain implants, cyber-being)
3. new tracking, monitoring and adjustment capabilities of bodies, behaviour and state of being
4. new experiential opportunities (how far can body modification be taken)
5. questions of access and distributive or commutative justice (especially in health-related applications)