
ICT Foresight and Roadmap towards Innovative Applications in the Nordic Countries

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ICT Foresight brings together Nordic companies, research organisations and policy makers to define and promote the Nordic way of implementing ICT so that it increases well-being in the society.

Objectives -> Criteria for selecting application areas

- Identify, select and present scenarios illustrating the prospects for possible future applications for IC technologies with respect to technology, application and market issues
- Explore the roads to commercialisation
 - provide solutions where ICT can provide the biggest competitive advantage and
 - positive contribution to societal wellbeing
 - identification of unique market opportunities with longer-term growth potential
- Maintain and develop the scientific and industrial networks within IC technologies

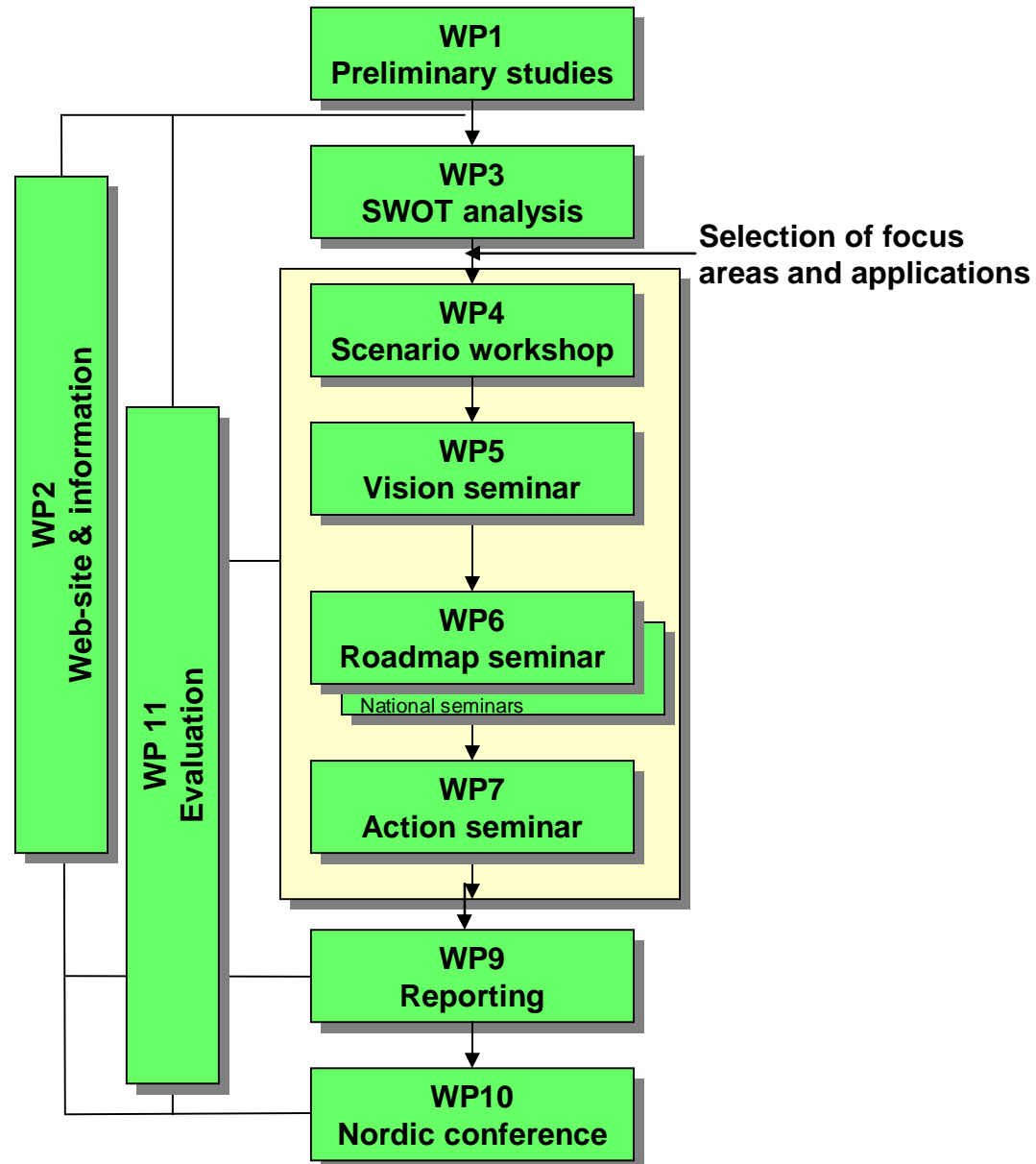
Objectives -> Tasks for examining focus areas

- Explore appropriate ways of implementing the innovative ICT applications and systems
 - prioritise research, development and commercialisation of ICT
 - consider the required infrastructure technologies
- Estimate the implications of the innovative ICT applications and systems
 - assist in developing appropriate framework policies that facilitate the developments in desired directions

ICT related development themes

- **Patterns of performance indexes:** follow up efficiency, predict performances
- **User interfaces are based on traditional and technology oriented paradigm:** should adapt better to human capabilities and limitations
- **ICT mainstreams develop heavily user interface devices and channels:** must be able to benefit
- **All necessary information does not come from measurements:** need efficient methods to access intranet, Internet, document databases, etc.
- **Reliability and availability models also for non-safety-critical applications:** diagnostics and condition monitoring information used for wider purposes
- **Network protocol:** standardized protocols, Bluetooth/802.15 and ZigBee seem to be dominant
- **Relay terminals:** high capability PDAs, mobile phones...
- **Mobile network:** while systems could also run over wireless LANs, the focus in development is on wide-area mobile telecommunications networks
- **Connection to facility:** authentication and encryption; in case of large facilities, the establishment of a VPN may be relevant
- **Information system:** options for processing the data can vary from web-browser based solutions to dedicated software; depending on standardization and configurability the monitoring data could be integrated to EMR system, too.

Solution	Current technology	New technologies
User and service authentication	SIM, USIM, WIM, SWIM, IKE, passwords, SMS, etc.	HST, biometrics, HIP, DNSSEC
Digital signature and verification	Browser signatures	Application-dependent or universal smart card, signatures
Media distribution restriction	OMA-DRM, manufacturer-dependent DRM, protected memory cards, scanning of peer-to-peer networks	Trusted platforms
Encryption of saved data	Memory encryption programs	Strong cryptographic protection of all memory devices.
Connection to the electronic payment system	ssl/tls encrypted wap or web, one-time passwords for banking (Tupas)	Trusted HW/SW platforms, HST-SIM
Privacy protection	ssl/tls, PKI, VPN, SIM auth, NAT, anon. services, register protection, SAML, Liberty	E.g. spontaneous and peer-to-peer networks, onion routing
Protection of servers	FW, SW-auto updates, etc.	Automatic quality assurance tools
Detection of attacks	Local DBs in IDS systems, distribution of black lists (hosts)	Global, shared DBs in IDS systems
Protection from malware	Identifier-based antivirus programs	Latest heuristic analysis, memory areas
Secure settings	Manually or with SMS	Remote configuration standards, OMA SyncML DM



Benefit for society

- Concentration of R&D efforts
- Co-ordination between visions, intentions and actions of governments, science and industry
- Consensus on promising economic sectors in order to initiate the transformation into the innovative applications of ICT
- Communication about key aspects of ICT usage
- Commitment to the implementation of the roadmaps