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SMART /GREEN ICT FRAMEWORK - GREEN ICT DEFINITION

GREEN ICT DEFINITION

“The efficient application of intelligent, energy, eco-friendly technology and techniques throughout the organisation”

EFFICIENT APPLICATION

Refers to utilising ‘systems’ in a manner that is ‘right-sized’ for the business, service or organisation and operating at their optimum capacity (‘load’). The principles of efficient application are in opposition to ‘over-provisioning’.

Potential Benefits:

- Optimise energy consumption, reduce operational costs and emissions per unit of business value
- Reduce embodied carbon/energy, Capital expenditure, operational management costs when compared to ‘traditional’ provisioning methods
- Reduce or eliminate sources of waste (energy, HVAC and Materials waste)

INTELLIGENT ENERGY SENSITIVE [TECHNOLOGY]

Refers to software, systems and hardware that intelligently manage energy consumption whilst performing their respective function/s. May be a combination of hardware, software electro-mechanical equipment and/or system processes.

Potential Benefits:

- Optimise business value per unit of energy
- Reduce waste and administration via autonomous (intelligent) energy management.
- Optimise energy management throughout the [service] supply chain.
- Limit GHG emissions from non-renewable energy sources
- Reduce risk exposure and align with CSR policy / regulatory emissions restrictions.

INTELLIGENT ECO-FRIENDLY [TECHNOLOGY]

Refers to ICT hardware & devices that have been designed to minimise the environmental impact over their lifecycle. Examples of these are: highly recyclable modular equipment design, recycled or contain post-consumer materials, absent of hazardous substances (*‘fit for disposal’*) and manufacturing / lifecycle management processes which are less socio-environmental impactful than traditional methods.

Potential Benefits:

- Reduce end of life/disposal administrative overheads
- Align with CSR policy / Environmental regulations
- Reduce ecological impact of physical assets
- Increase the air quality of the indoor (office) environment

INTELLIGENT EARTH/ENERGY SENSITIVE [TECHNIQUES]

Refers to the business processes, operations and the people (‘techniques’) required to support SMART GREEN strategies, which are augmented by technology. Examples of these are business processes/ supply chain optimisation, energy measurement, SMART transport systems, building environmental automation, lifecycle management and E-working.

Extensions of this concept are strategies to reduce overall footprint of the organisation through processes underpinned by technology. Also known as Green by IT. Information technology is an ‘enabler’ for efficiency initiatives.

Potential Benefits:

- Align operational processes with the principles of resource conservation and operational expense containment.

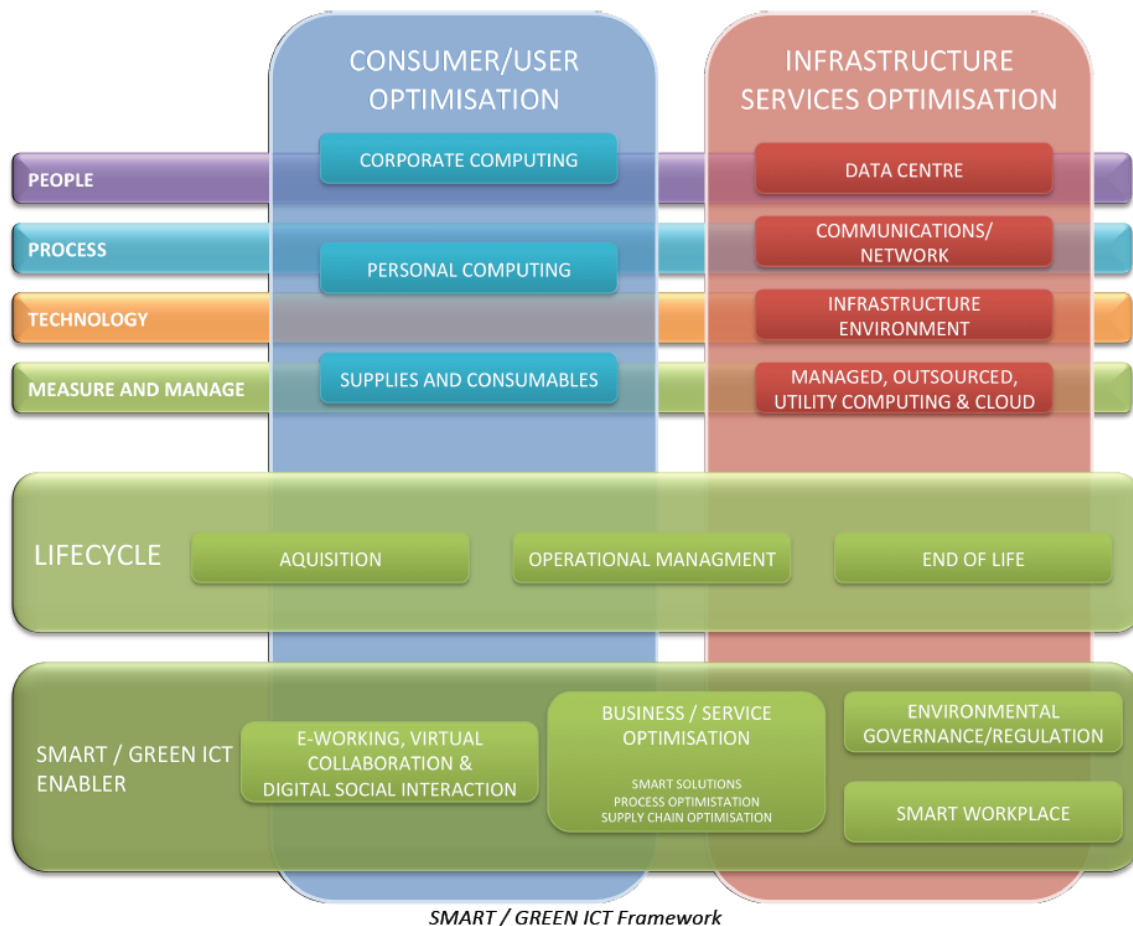
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- Reduce the economic and environmental footprint of the organisation
- Align with organisational CSR goals

THE 'SMART / GREEN' ICT FRAMEWORK

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SMART /GREEN ICT FRAMEWORK IMPETUS

Organisations and individuals have differing opinions of what *[SMART]* GREEN ICT means. GREEN ICT is a relatively new concept and due to differing opinions it has been challenging to define and measure an organisation's adoption or effectiveness of *[SMART]* GREEN ICT.

The 'SMART GREEN' ICT framework can assist organisations and individuals in classifying their GREEN ICT and organisational wide SMART initiatives.

The framework consists of two vertical pillars; Consumer/User and Infrastructure services which represent the main areas where ICT is widely adopted. These are overlaid by two lateral elements: Lifecycle and Smart/Green by IT.

Lifecycle element represents the management of technology assets from acquisition to disposal.

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Smart/Green by IT element represents the application of ICT to increase efficiency and reduce the overall environmental impact of the organisation.

All these elements are underpinned by 'People', 'Process', 'Technology' and 'Measure and Manage' which represent key instruments in organisational transformation and the application of SMART / sustainable ICT practices.

It is understood that any organisation would be challenged to transform to a SMART/GREEN business operations if there were a scenario of limited awareness and/or stakeholders lacked a common understanding how to leverage SMART sustainable ICT/practices.

The SMART / GREEN ICT framework offers the following benefits:

- Non-Technical reference (IT and Non-IT teams understand, collaborate and communicate on initiatives)
- Simple graphical layout (easy to illustrate concepts and presentation friendly)
- Agnostic resource (Compliments other frameworks from Technology vendors, system integrators and solution providers)
- Common reference framework (Streamline communication with external parties and assist in classifying the 'Green' features of products or services)

Through the framework meaningful communications between IT services, Human resources, Finance, Business units, external parties and executive management can occur without the overburdening with complex terminology or explanations which are normally associated with sustainable practices.

VERTICAL ELEMENTS OF THE SMART GREEN ICT FRAMEWORK

CONSUMER/USER OPTIMISATION

'ICT systems that are provisioned by IT function are however operated (used) by non-IT staff. Referred to as end-users, they could be clients of the organisation or a hybrid of both internal and external end-users. Consumer/user optimisation encompasses desktop systems, workplace output, mobile computing, consumables, consumer service optimisation and any by-products resulting from ICT operations.

Corporate computing

Encompasses varying forms of corporate computing end-user services including but not limited to:

- Distributed computing
- Client side computing (client - server model)
- Thin client/s and virtualised end-user desktop / mobility derivatives
- Mobile Computing / SMART devices (PDA, Smart phones, tablets and pads)
- Client architecture and devices for 'As a Service' (aaS) and utility computing

Personal computing

Encompasses varying forms of personal computing (not corporate owned) devices and services including but not limited to:

- Personal compute devices (including BYOD)
- Hand held / mobile Computing / SMART devices (PDA, Smart phones, tablets and pads)
- Gaming consoles
- Client architecture and devices designed for consumer entertainment, social and non-corporate utility services (e.g. 'As a Service' (aaS))

Consumables

Encompasses all forms of consumables related to end-user /client operations including but not limited to:

- Ink and toner
- Paper (all type)

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- Disposal, single use or limited-lifespan media and disposal assets (DVD, CD, pre-paid Sim cards etc.)

INFRASTRUCTURE SERVICES OPTIMISATION

This area includes ICT systems that are operated and directly managed by ICT professionals, either in-sourced, managed, outsourced services or hybrid models.

Infrastructure services optimisation encompasses data centre, energy supply chain & control systems, communications / Telco and 'As a Service' (aaS) infrastructure.

Data Centre

Encompasses the data centre, 'compute' equipment including but not limited to:

- Server equipment
- Storage equipment / infrastructure equipment
- Backup devices
- Management devices (DC management, reporting & Control)

Communications and Network

Encompasses varying Network, Communications and Telco infrastructure including but not limited to:

- Routers, switches, hubs, WAP
- Bound and unbound network/s
- Telco infrastructure

Infrastructure environment

Encompasses the non-compute based infrastructure services (e.g. supply side) including but not limited to:

- HVAC, UPS, PDU, Switch gear
- Facilities (building)
- Lighting
- Management systems (fire control, security)
- Electro-mechanical devices

Managed, outsourced, utility computing & cloud

Includes all infrastructure services which are outsourced in part or full, external to the organisation, including but not limited to:

- Infrastructure architecture and footprint relating to: 'As a Service' (aaS) and utility Computing solutions (Client and provider)
- Managed print services
- Managed document services

LATERAL ELEMENTS OF THE SMART GREEN ICT FRAMEWORK

PEOPLE

People encompasses; who are accountable for environmental / efficiency and performance of SMART/GREEN ICT initiatives, job functions and related responsibilities. This includes the individuals and employee's attitude to socio-ecological conservation and climate change. People also refers to the individuals or teams working towards a collective goal of increasing efficiency and reducing the environmental footprint resulting from consumer and business ICT activities.

PROCESS

Process refers to an execution, plan of action for an organisation to indoctrinate both strategic and tactical SMART / GREEN ICT initiatives. Processes, which are underpinned by technology, lead 'people' to a predicted and measureable outcome.

TECHNOLOGY

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Technology includes the hardware, software utility computing and systems that underpin initiatives to increase efficiency and reduce the organisational ecological footprint (SMART/GREEN ICT).

Technology is used to determine the effectiveness of a SMART/GREEN ICT initiative (monitoring/ reporting), as well as ensure organisational consistency and compliance through automating processes.

MEASURE AND MANAGE

Monitoring efficiency and environmental performance through self-imposed and/or regulation based key performance indicators.

Measuring metrics forms the foundation of any baseline. Key performance indicators are established to determine the project or strategy effectiveness.

Reporting provides the opportunity to proactively manage and implement 'course corrective' steps to further optimise a service and better manage resources for growth.

Measure and manage can be applied to the business as a whole, external services for clients and/or the IT function itself.

LIFECYCLE

Encompasses the 'complete' lifecycle for equipment or a service. The scope of the lifecycle extends beyond the 'traditional' ICT service lifecycle definition.

Acquisition

Includes all ICT equipment and services which are managed by the organisation, which includes but are not limited to:

- Equipment (or services) which come under the command and control of the organisation through purchase, lease, acquisition, merger or donation.
- Evaluation of the device, consumable and the supplier's footprint as a result of manufacturing, packaging and distribution (supply chain).

Operational management

Includes all ICT equipment and services, which are 'in-use' by the organisation, including but not limited to:

- Energy, emissions, discharge and by-products over the 'use phase' of the service or product lifecycle.
- Effectiveness and the efficiency of the management of devices, products, consumables and services throughout the 'use phase'.

End-of-Life

Includes all ICT assets and services, which are tagged for retirement or otherwise would be no longer be under the control of the organisation, includes but not limited to:

- Cessation of 'As a Service' (aaS) and utility Computing solutions (Client and provider)
- Disposal, donation, relocation, asset / stock inter-departmental transfers and recycling of equipment and/or consumables.

SMART / GREEN ICT ENABLER

ICT has the greatest potential to increase operational efficiency and reduce the overall environmental footprint of the organisation. This element deals with methods, solutions and the technology, which reduces an organisation's operational footprint ("the other 98%").

E-working, virtual Collaboration & digital social interaction

ICT solutions, which make possible 'location independent' work, social interaction and/or increase collaborative efficiency. Specific solutions, which, can reduce or eliminate the reliance on resources and the ecological footprint when compared to business as usual (BAU) scenarios. Includes but not limited to:

- E-commuting, work from home infrastructure, nomadic workforce solutions (e.g. reduced travel requirements)

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- Information, file sharing distribution services
- Social networking and dynamic (personal) media / interactive solutions

Business / service optimisation

Business processes and services, which reduce the operational footprint and are optimised through the efficient use of technology. Includes but not limited to:

- Supply chain optimisation encompasses principles such as Zero stock, Built to order (BTO) and solutions which increase the efficiency and reduce the footprint of the supply chain in part or whole.
- Business process optimisation (automation) increase the efficiency, reduce waste and consumables consumption of business systems and processes when compared Business as usual (BAU)
- SMART solutions which increase the efficiency, operational intelligence whilst reducing the environmental footprint of the service/s the organisation supplies.
- Technology based systems which treat and/or manage operational by-products or minimise environmental impact

Environmental governance and regulation

ICT solutions, which monitor and manage self-imposed or environmental reporting regulatory compliance requirements; includes but not limited to:

- Carbon Emission Management Software (CEMS)
- Enterprise Environmental Management Systems (EEMS)
- Carbon, emissions environmental reporting systems
- Environmental, sustainability management software and systems

SMART workplace

Encompasses how ICT enables alternate workplace design and greater flexibility for employees when compared with traditional work environments, includes but not limited to:

- Hot seat office scenarios (High percentage of communal office space)
- Reduced floor space and supporting infrastructure for the same number of workers (BAU)
- Bring your own device scenarios (BYOD)
- Office location independent working and collaboration in the office