#SMARTer2030

business playbook

THIS PLAYBOOK PROVIDES SUPPORT TO BUSINESS LEADERS WITH IDEAS TO ENABLE THE SUSTAINABILITY BENEFITS OF ICT SOLUTIONS FOR A SMARTer2030

An initiative by: [GeSI logo] supported by: [CSCP logo]
KEY MESSAGES FOR BUSINESS LEADERS

ICT FACES SUBSTANTIAL AND EXCELLENT GROWTH PERSPECTIVES...

...at the same time generating major sustainability and broader social benefits. We estimate $2 trillion* in additional ICT revenues in 2030, thereof $0.4 trillion from connecting 2.5 billion new people to ICT services and $1.6 trillion from delivering new ICT services across 8 key sectors. Overall, ICT could enable $11.4 trillion stakeholder benefits, comprising new revenues from new business opportunities across key sectors and reduced costs from greater efficiencies and decreased waste.

BUSINESS LEADER ACTION IS KEY

To fully realize ICT’s business and sustainability potential action is required: Business leaders should explore ICT-enabled opportunities, realize ICT-enabled cost savings and commit to bold action.

BUSINESS REQUIREMENTS

...vary by sector and should consider the differences between developing, emerging and developed markets.

*all currency data is in US Dollars
TO FULLY REALIZE ICT’S BUSINESS POTENTIAL ACTION IS REQUIRED

CALL TO ACTION

PRIORITIZED BUSINESS ACTION AREAS:

PRIORITY AREA 1
EXPLORING ICT-ENABLED OPPORTUNITIES
Connect with frontrunners, key sector actors and technology leaders. Learn, estimate and seize your business and revenue opportunities.

PRIORITY AREA 2
REALIZING ICT-ENABLED COST SAVINGS
Understand the “T” of ICT and its application range to exploit immense cost savings in all sectors through greater efficiencies and less consumption of scarce resources.

PRIORITY AREA 3
COMMITTING TO BOLD ACTION
Adapt ICT to your business. Innovate carbon efficient technologies, products and services. Collaborate with peers on ways to achieve greater carbon efficiency and set your own sustainability goals. Become part of the low carbon economy!
PRIORITY AREA 1
EXPLORING ICT-ENABLED OPPORTUNITIES

KEY BENEFITS OF ICT
ICT solutions are being implemented in one or more of the following key sectors:
- Energy
- Agriculture
- Health
- Learning
- Housing
- Mobility & Logistics
- Work & Business
- Manufacturing

By 2030, besides positive economic effects (revenue, growth and cost cutting potential), there will be sustainability benefits (reduction / halting of CO₂ emissions, saving of scarce resources) as well as social benefits (expanded internet connectivity, e-services).

<table>
<thead>
<tr>
<th>SECTORS</th>
<th>SMARTer2030 SOLUTIONS</th>
<th>BUSINESS OPPORTUNITIES, SUSTAINABILITY AND SOCIAL BENEFITS</th>
</tr>
</thead>
</table>
| ICT + Energy | SMART Mobility
- Traffic Control & Optimization
- Connected Private Transportation
- SMART Logistics |
| Agriculture | SMART Buildings, Energy & Efficiency
- Smart Grid
- Smart Buildings
- Smart Manufacturing
- Smart Agriculture |
| Health | E-services
- E-health
- E-commerce
- E-learning
- E-work |
| Learning | Overall, $11.4 trillion stakeholder benefits, comprising revenues from new stakeholder business opportunities such as improved agricultural yields and reduced costs from greater efficiencies and decreased waste |
| Housing | Revenues
- $6.5 trillion ICT revenues per year by 2030, thererof
  - $2 trillion in the ICT sector including $0.4 trillion from connecting 2.5 billion new people to ICT services and
  - $4.5 trillion ICT-enabled revenues from other sectors |
| Mobility & Logistics | Cost cutting potential and sustainability benefits
- $4.9 trillion overall cost savings
  - Saving up to 25 billion barrels of oil and
  - 332 trillion liters of water and other scarce resources through ICT
- Overall, ICT could enable a reduction of 12Gt of CO₂e from the global economy by 2030, maintaining CO₂e emissions at 2015 levels |
| Work & Business | Social benefits
- ICT could connect 2.5 billion additional people by 2030 to services that improve the quality of their lives. Globally, ICT could provide access to e-health for 1.6 billion people and benefit 0.5 billion e-learning participants |
| Manufacturing | |

+ SMARTer2030 SOLUTIONS +
PRIORITY AREA 1
EXPLORING ICT-ENABLED OPPORTUNITIES

ICT-ENABLED BENEFITS PER SELECTED USE CASE
As illustrated in selected use cases below, ICT-enabled global benefits by 2030 are achieved in both key sectors and the ICT sector.

<table>
<thead>
<tr>
<th>USE CASE STAKEHOLDERS</th>
<th>ICT SECTOR*</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-COMMERCE</td>
<td></td>
</tr>
<tr>
<td>Retailers’ additional revenues thanks to e-commerce</td>
<td>ICT revenues from developing online shopping platforms</td>
</tr>
<tr>
<td>$1.1 Tr</td>
<td>$580 Bn</td>
</tr>
<tr>
<td>E-HEALTH</td>
<td></td>
</tr>
<tr>
<td>Private health sector additional revenues from selling e-health services to its clients</td>
<td>ICT revenues from wearable devices</td>
</tr>
<tr>
<td>$209 Bn</td>
<td>$63 Bn</td>
</tr>
<tr>
<td>TRAFFIC CONTROL &amp; OPTIMIZATION</td>
<td></td>
</tr>
<tr>
<td>Traffic control panel companies’ additional revenues</td>
<td>ICT revenues from smart traffic devices</td>
</tr>
<tr>
<td>$704 Mn</td>
<td>$95 Mn</td>
</tr>
<tr>
<td>SMART MANUFACTURING</td>
<td></td>
</tr>
<tr>
<td>Industry cost savings thanks to process optimization</td>
<td>ICT revenues from industrial machinery optimized with smart sensors</td>
</tr>
<tr>
<td>$12 Bn</td>
<td>$3 Bn</td>
</tr>
</tbody>
</table>

* Note: Revenue effects from connecting new users to ICT are not taken into account to avoid overlapping.
## Prioritity Area 2
### Realizing ICT-Enabled Cost Savings

**ICT-Enabled Global Resource Savings by 2030**

The following table illustrates global savings of resources in terms of amount and money by 2030. Savings occur through the implementation of smart ICT solutions across identified “use cases” as examples show on the previous page. Total ICT-enabled savings of resources will equal nearly $5 trillion.

<table>
<thead>
<tr>
<th>Resource Saved</th>
<th>Amount Saved</th>
<th>Price Per Unit</th>
<th>Total Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liters of fuel saved</td>
<td>1.1 Tr</td>
<td>$/Liter (<a href="http://www.globalpetrolprices.com/gasoline_prices">www.globalpetrolprices.com/gasoline_prices</a>)</td>
<td>1.08 Tr</td>
</tr>
<tr>
<td>MWh of energy saved</td>
<td>17 Bn</td>
<td>$/MWh (European Commission data with Accenture correction rate)</td>
<td>71.24</td>
</tr>
<tr>
<td>Liters of water saved</td>
<td>332 Tr</td>
<td>$/Liter (<a href="http://researcher.watson.ibm.com">http://researcher.watson.ibm.com</a>)</td>
<td>0.0013</td>
</tr>
<tr>
<td>Tons of paper saved</td>
<td>91 Mn</td>
<td>$/Ton (<a href="http://www.woodbusiness.ca">www.woodbusiness.ca</a>)</td>
<td>266</td>
</tr>
</tbody>
</table>

$ from other savings = 2.4 Tr

PRIORITY AREA 2
REALIZING ICT-ENABLED COST SAVINGS

THE SAVINGS POTENTIAL OF SMART BUILDING SOLUTIONS
The following case study illustrates how automation systems for smart buildings can realize cost savings based on reduced energy consumption.

OBJECT: a Large New York City hotel, built in 1963 with a total surface of 321,686 sq. ft., equivalent to 12 floors/250+ guest rooms. As of 2015, the building is equipped with 5 building management systems/controls systems

CONCEPT: Implementation of specific automation systems within broader smart building solutions, looking for a significant reduction in energy consumption

MAIN OPTIMIZATION AREAS IDENTIFIED:
1. Suboptimal VAV/AHU* scheduling
2. Suboptimally economized guest room operations
3. Stuck/leaking steam valves, valve/damper hunting and boiler staging, chilled water re-set

SMART BUILDING SOLUTIONS IMPLEMENTED (included as upfront and ongoing costs):
• Integration of automated fault detection systems and diagnosis tools to control systems
• Continuous building monitoring and analytics
• Measurement and verification systems
• Program management and operational guidelines

CALCULATIONS:
Time horizon considerations:
• Implementation of measures in 2016, last applicable saving for 2025 (10 full years of application)
Economic considerations:
• Upfront cost of $150,000 + $0.3 per sq.ft.
• Yearly cost of $20,000 + $0.2 per sq.ft.
• Yearly savings: $150,000, increased by 5% in the first two years due to increased efficiency
• Discount rate = national bond 10-years (i.e.: US Govt. Bond Yield: 2.0%)

RESULTS:
• Net Present Value of implementation costs + obtained savings in energy consumption: between $525,000 and $575,000
• Initial investment and installation costs estimation: $250,000
• Investment recovery after 2 - 3 years
• Maximum annual savings in electricity consumption: between $160,000 and $170,000
• CO₂e that has been abated due to this project (2016-2025): 13.7k MWh = 1,345 tn CO₂e
• CO₂e abated per monetary unit (in $) invested in the project: $747 = 1 tn abated

* VAV=Variable Air Volume, AHU=Air Handling Unit
LEADING BUSINESSES HAVE EITHER COMMITTED TO CO₂ REDUCTION TARGETS OR ALREADY TAKEN ACTION TO BUILD THE PROSPEROUS LOW CARBON ECONOMY OF THE FUTURE

BUSINESS COALITIONS

Business Coalitions* recommend:

- Increase the current level of urgency and ambition to stabilize global emissions before the end of this decade in order to raise bold business opportunities
- Set clear long-term emissions reduction targets in line with the scientific 2°C target for restricting global warming
- Implement domestic policies towards 2030 that support bold business action to cut GHG emissions
- Ensure that all policy regimes dealing with fiscal, energy, industry and trade-related issues provide actionable incentives for an early transition to a low carbon future
- Enhance existing mechanisms by which we improve transparency and accountability in monitoring climate ambition and action, and ensure a stable and predictable low carbon investment environment
- Continue to scale up public finance to support resilience-building and accelerate low carbon investment by the private sector
- Innovate low carbon materials, products and services
- Switch to 100% procurement of low-carbon electricity
- Integrate internal carbon prices to affect investments decisions and in anticipation of regulated carbon pricing
- Collaborate with peers on low carbon commodity sourcing standards to eliminate deforestation from their value chains
- Commit to responsible corporate engagement in climate policy and aligning public affairs with sustainability strategies
- For investors, publishing and reducing the carbon footprint of their portfolios and setting clear targets to reduce it
- Collaborate to reduce emissions in their supply chains and at sectoral level
- Develop low carbon technology partnerships to speed the deployment of low carbon and breakthrough technologies

* Business Coalitions referred to are: We Mean Business, Partners of the Business and Climate Summit, and others
PRIORITY AREA 3
COMMITTING TO BOLD ACTION

MULTILATERALS

Multilaterals* recommend:
• Demonstrate leadership in advancing practical solutions and strategies addressing climate change
• Align a climate change business strategy with a UN-led initiative that has high visibility
• Communicate publicly a company’s actions on climate change
• Share best and emerging practices and gain access to the experiences of peers
• Shape the climate change policy agenda and call for policy frameworks that reward leadership and innovation
• CO₂ emissions generated by the telecommunication/ICT sector to be decreased per device by 30% by 2020**

* Multilaterals referred to are: Caring for Climate (Caring for Climate is an initiative of the UN Global Compact, the UN Environment Programme and the secretariat of the UN Framework Convention on Climate Change), International Telecommunication Union (ITU) and others

** Baseline data still pending and to be published by ITU in 2015 as part of its Connect 2020 Agenda

Selected company examples***
• Reduce worldwide CO₂e emission intensity by 80% compared to 1996/97 levels by December 2020 (KPI)
• Reduce carbon emissions in Japan by 30 million tons annually by 2020 through the provision of advanced, energy-efficient technologies and solutions
• Commitment to make operations carbon neutral. To achieve net zero emissions for data centers, software development labs, offices, and employee business air travel in over 100 countries around the world
• Reduce CO₂ emissions by 20 percent by 2020 compared with 2008 through effective efficiency measures
• Reduce direct CO₂e emissions intensity of vehicle fleet by 25% per kilometer from 2010 to 2015 through purchases of smaller and more efficient vehicles
• Reduce CO₂ emissions across entire value chain by 40% from 2010 to 2020
• Reduce emissions intensity of operations by 20% by 2020 through energy efficiency and renewable energy purchases and installation

*** Company examples listed are all member or cooperation partner of the Global e-Sustainability Initiative (GeSI)

Further examples at: climateaction.unfccc.int/companies.aspx?industrygroupid=13&