Swedish Agency
for Marine and
Water Management

DATA HARVESTING
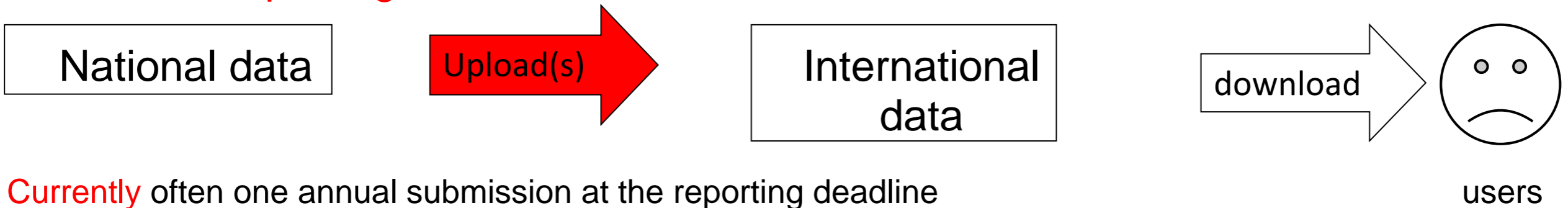## machine to machine

SMHI

Authors from SMHI: Lotta Fyrberg, Nils Nexelius, Arnold Andreasson and Lisa Sundqvist
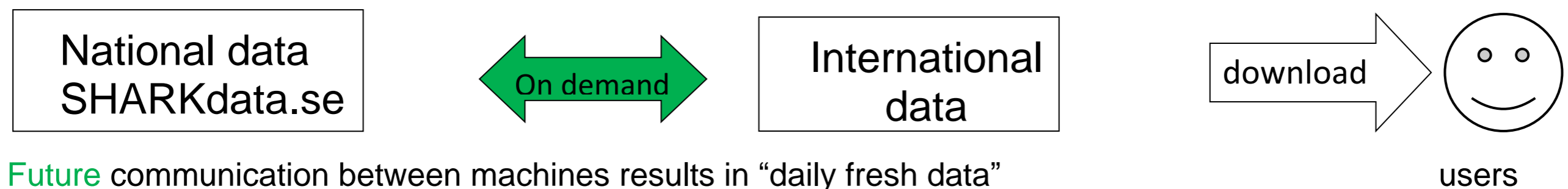

End of reporting deadlines? Optimizing dataflow by harvesting – a study using open source REST-server technology from **SMHI in co-operation with ICES**

- Present reporting - Manual

ICES CIEM

| National data | Upload(s) → | International data | download → | :(|

Currently often one annual submission at the reporting deadline   users

- Future harvesting by machines

ICES CIEM

| National data SHARKdata.se | ← On demand → | International data | download → | :) |

Future communication between machines results in "daily fresh data"   users

Data users will always need access to highest quality, largest collection, and most recent version of data. Advances in technology can meet these demands via technical solutions. One way forward is to grant open access using machine to machine interfaces. SMHI has developed http://sharkdata.se/ system to handle these data flows. Data are currently being harvested in the DwC-A format, by portals such as EMODnet Biology (and hence to EurOBIS/OBIS), and by the Swedish LifeWatch system.
There is now an ongoing study in co-operation with ICES Data Centre. The aim of this study is to automate the national reporting of biological data (phytoplankton, zooplankton, phytobenthos and zoobenthos) from OSPAR and HELCOM regions, to the Marine Environment data portal (DOME). This will result in the following

I. Reduce the amount of manual work (and human errors)

II. Ensure the most recent version of data in DOME

III. Automated quality controls, through DATSU REST API, on data.

IV. Higher quality of the data.

All technology used is open source (MIT license) and hence open for everyone to download and build their own system. For data users it is possible to use R and Python to set up any type of analysis on data from the Swedish National Oceanographic Data Centre at SMHI. Examples are published on the server SHARKdata.se

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