Sol Chip Platforms Power and Connect Autonomous IoT Devices
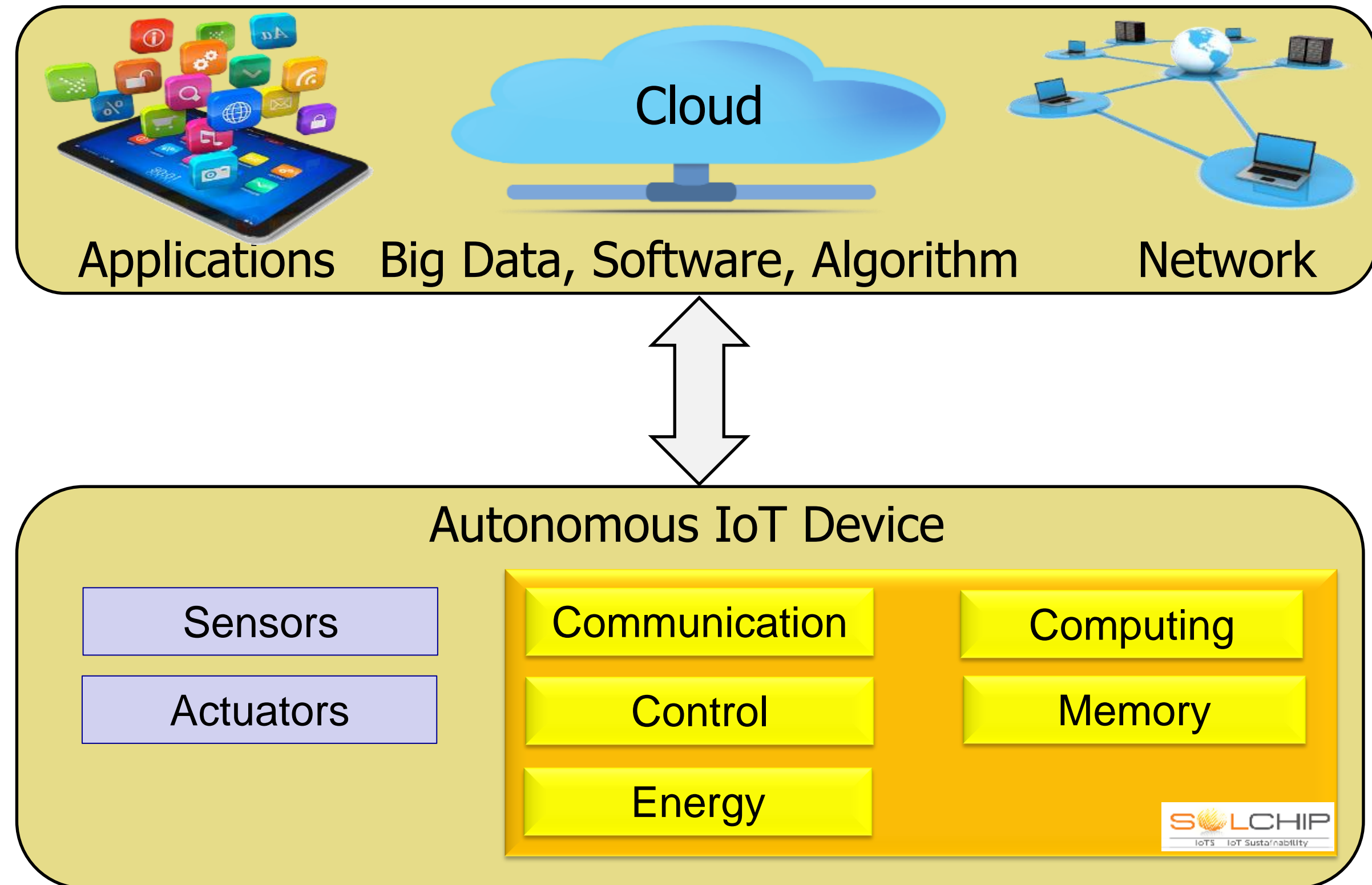
► 95% of IoT data is gathered from sensors

► Cost-effective autonomous IoT devices are the key to massive deployment of devices that will enable myriad of applications

► Sol Chip Platform provides

   ► Everlasting energy

   ► Wireless communication

   ► Sensors+actuators control

SOLCHIP IoTS   IoT Sustainability

Cloud

Applications   Big Data, Software, Algorithm   Network

Autonomous IoT Device

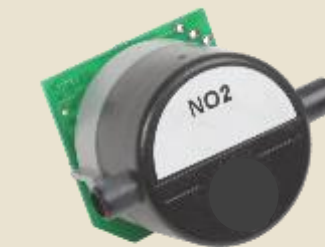| Sensors	Communication	Computing
Actuators	Control	Memory
	Energy	

SOLCHIP IoTS   IoT Sustainability

Target Market:

- ➤ Autonomous IoT devices
  - ➤ Autonomous: self-powered, wireless, minimal maintenance
  - ➤ Best for: remote sensors and actuators, outdoor and indoor
- ➤ IoT Segments
  - ➤ Precision agriculture
  - ➤ Smart city
- ➤ Differentiation: Sol Chip's platforms are
  - ➤ Smaller
  - ➤ Cost effective
  - ➤ Zero maintenance for 10 years

Precision Agriculture

Wireless sensor controller

Wireless Sensor and valve controller

Smart City Applications

Smart parking

Smart waste management
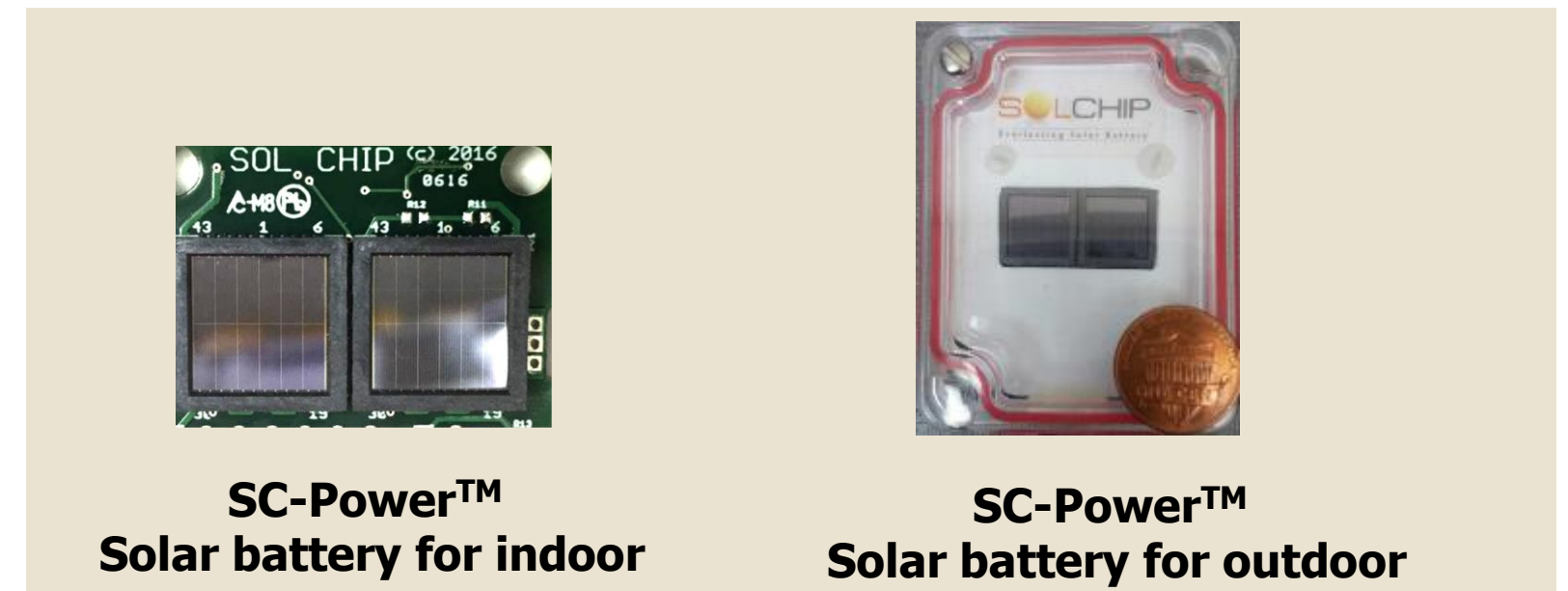
EHS services
(environ. health, safety)

BLE Beacon

Sol Chip's IoT LightBattery™ Based Platforms:

▶ LightBattery™ – Sol Chip's innovative and patented energy harvesting technology

    ▶ The LightBattery™ integrate photovoltaic (Solar) cells into a standard chip package that can be mounted on a Printed Circuit Board (PCB)

    ▶ Unique Power Management circuitry maximizes energy harvesting for all-weather operation

Light Battery™

SC-Comm™
Solar Tag

SC-Comm™
Gateway

SC-Power™
Solar battery for indoor

SC-Power™
Solar battery for outdoor

SC-Comm™

Continuous Power, Sensing and Communication Platform

SC-Power™

Continuous Power Platform

Precision Agriculture Segment:

Wireless Sensors and Valves

- **The opportunity:** install wireless sensors and valves to enable optimization of water consumption and crops yield

- **SC-Comm:** Miniature, cost-effective, maintenance free wireless Solar Tag – with sensor and actuator control

- **Used in:** Open fields, greenhouses, orchards, etc.

- **Commercial availability:** Wireless sensors – today; Wireless valves with bidirectional radio – samples Q117, commercial Q317

- **Commercialization status:**

  - Successful pilots completed in Q216, now ramping up sales: Israel, LATAM, US, Asia, Europe

  - *Started pilot Q416 in China*

SC-Comm
Wireless Gateway

Internet of Things

Up to 15km

Farmer's Interface

SC-Comm
Solar Tag

Irrigation Valve

Soil moisture sensor

Sol Chip Solar Tag Deployment Examples

Geographies: Spain, Israel, Argentina, Singapore , China
Sensors: Soil moisture, air temperature, light radiation

Greenhouse

Solar tags

(Sensors)

Vineyard

Community Garden

Open Field

Solar tags

Sensors

Smart City Segment:

Smart Waste Management

➢ **The Opportunity:** install wireless waste bin volume sensors to optimize collection truck's routes and save up to 40% OPEX

➢ **SC-Power:** Miniature, cost-effective, maintenance free wireless Solar Battery powers the sensor and GPRS modem that connects the sensor to the cloud

➢ **Commercialization Status:**

  ➢ Validated by field tests (Israel, Europe)

  ➢ Huge interest: China, Singapore, Japan

Internet of Things

GPRS

Vendor's Interface

SC-Power
Solar Battery

Trash Level Sensor

Additional Smart City and Smart Grid Projects:

➢ Smart Parking

  ➢ SCP powers the parking sensor

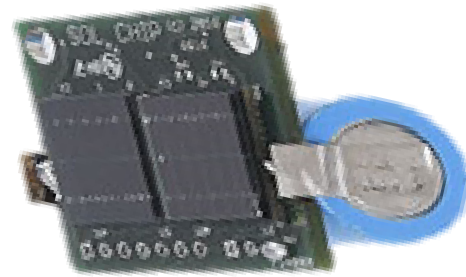 ➢ **Commercialization status : Pilot in progress in Israel**

➢ Groundwater Level Measurement

  ➢ SCP powers the sensor and 3G modem

  ➢ **Commercialization status : Developed a proof of concept with a Chinese company**

Why Sol Chip's SC-Power?

Sol Chip's SCP-2800

Energizer L91 1.5V 3.5Ah $2

Parameter	**SC-Power**	**Primary batteries**
Overall Efficiency	55 Ah/10years	3.5 Ah
Cost	$0.27 / Ah**	$1.2 / Ah**
Size	0.18 cc/Ah*	6.5 cc / Ah***
Maintenance	More than 10 years	when battery is depleted****

** SCP-2800 cost used: $15 (applicable for qty's of 100k/yr)
*** 2 x 1.5 volts batteries are needed to compare at voltage level of 3 volts
**** Primary batteries' depletion is due to usage and leakage

Why Sol Chip's SC-Comm?
(Precision Agriculture Applications)

**Sol Chip's
Wireless Solar Tags**

Lead competitor #1

Lead competitor #2

Parameter	**SC-Comm**	**Competition**
Cost	< $100	$200 – $500
Size	400cc (13x8x4cm)	2,000cc and higher
Maintenance	More than 10 years	2 – 5 years

Sol Chip's Accomplishments

Nominated as One of "60 Hot Startups To Watch"

Last 4 years

* Award winner of the "Most innovative Israeli startup of 2015"

"Outstanding Incubator Company award - 2012"

Award winner of the "Best Technical Development of Energy Harvesting 2013"

Winner of US-Israel Women Entrepreneurship award

Invited speakers in international conf. on Solar EH and latest innovations

Named one of the "Most Innovative Companies 2016" under Energy segment

* Sol Chip was selected out of 800 Israeli startups that applied to the competition

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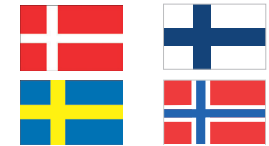E: belgium@texim-europe.com

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