



Understanding the future of smart indoor  
environments, and how to power them

**Rory Timlin**  
**General Manager**

[rtimlin@solarprint.ie](mailto:rtimlin@solarprint.ie)

+353 86 604 7748

# Overview

The world's best technology for **harvesting energy from indoor light**.

Our customers have great **wireless applications to improve how indoor environments are managed**.

These applications are **constrained by Access to Power**.

Only SolarPrint can **enable the self-powered, intelligent, wireless devices** they need.

# Indoor Environments

Commercial



Residential



Retail



Healthcare



## Made "Smart" by Wireless Devices

Sensors...



....Manage Energy

Controls...



...Manage Comfort

Displays...



...Manage Information

## That all need power

Mains Wired



Disposable Battery



Energy Harvesting



# Power Access – A Problem

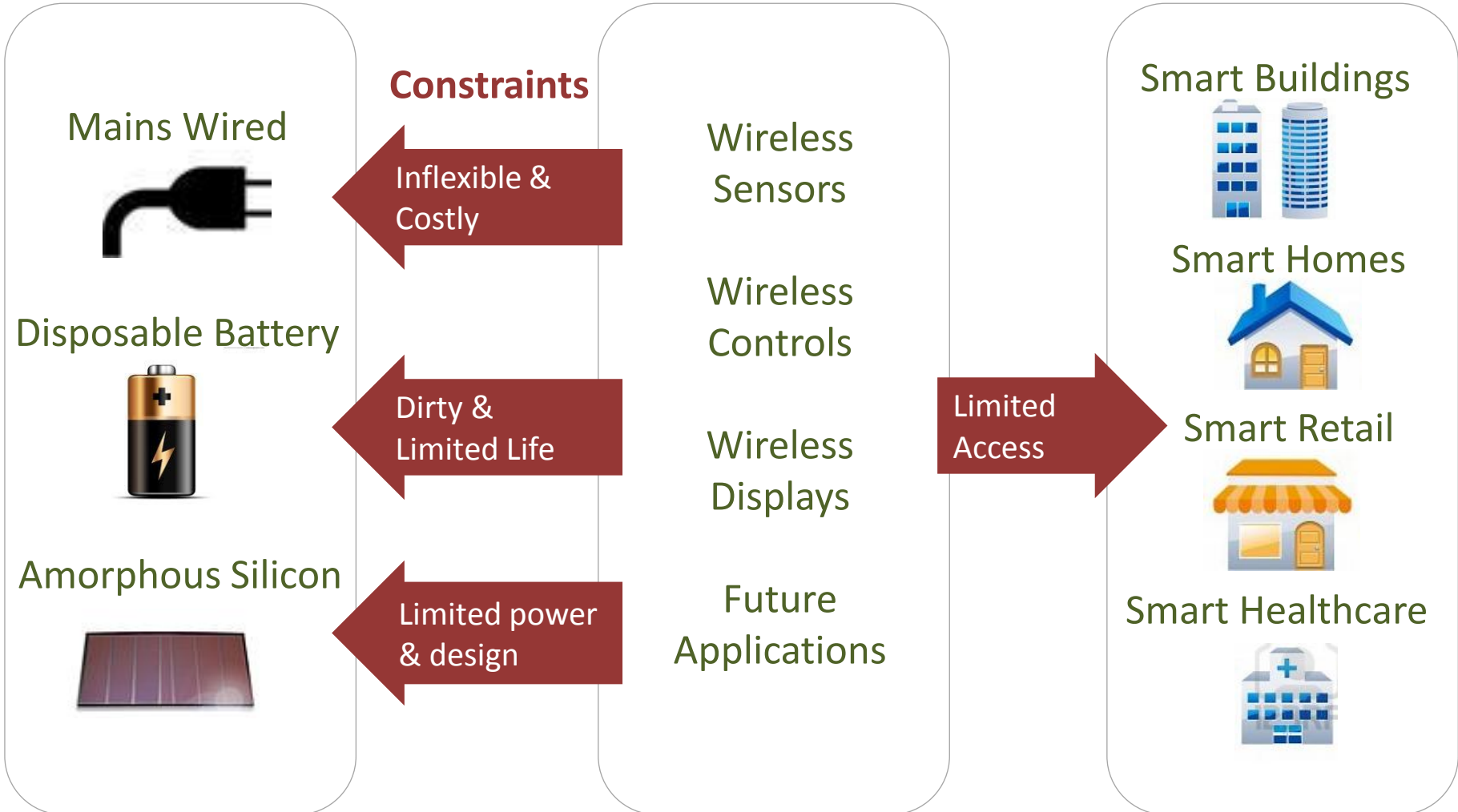
**Current Wireless Device Power Access**

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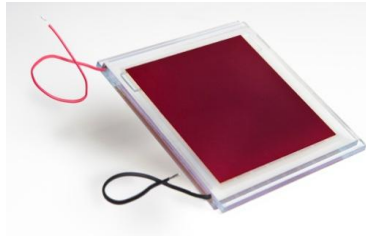
**SolarPrint Partners & Customers**

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**Market Penetration Constrained**



# Solution - SolarPrint Platform



<b>Size</b>	58 x 48 x 2.5mm
<b>Power</b>	210 $\mu$ W @ 200 lux
<b>Release</b>	Q1 2013
<b>Optimised &amp; Tuned DSSC</b>	

## Highest power indoor light harvesting

- 50% more power than the best alternative (aSi)
- Energy of 3 coin cell batteries per year

## Roadmap for indoor power & design

- 100% more power than aSi by 2014
- Printable process for custom designs & shape



### Beats Wired

- ✓ **Installation Cost**
- ✓ **Flexibility**



### Beats Disposable Batteries

- ✓ **Maintenance Cost**
- ✓ **Functionality**
- ✓ **Clean**



### Beats Amorphous Silicon

- ✓ **More Functionality**
- ✓ **Lower Light Operation**
- ✓ **Data Fidelity**

Highest Indoor Power



Custom Form Factors



Fully Scalable



Rapid Design-in



Many Applications



# Market Size – Light Energy Harvesting

## Wireless Sensors



- CO<sub>2</sub> Multi-Sensor
- PIR Sensors
- Multi-Sensors

**€400m Market Size  
for Light Energy  
Harvesting (2016)**

## Wireless Controls



- Door Locking
- Thermostats
- Switches

**€450m Market Size  
for Light Energy  
Harvesting (2016)**

## Wireless Displays



- Electronic Shelf Labels

**€350m Market Size  
for Light Energy  
Harvesting (2016)**

## Future Applications



- Medical Sensors
- Industrial Sensors
- Smart Displays
- Hand-held devices

**Billion € Opportunities**

# Customer Traction

SolarPrint DSSC product purchased by **30 commercial partners**

Tier 1 OEM  
Customers



Tier 2 OEM  
Customers

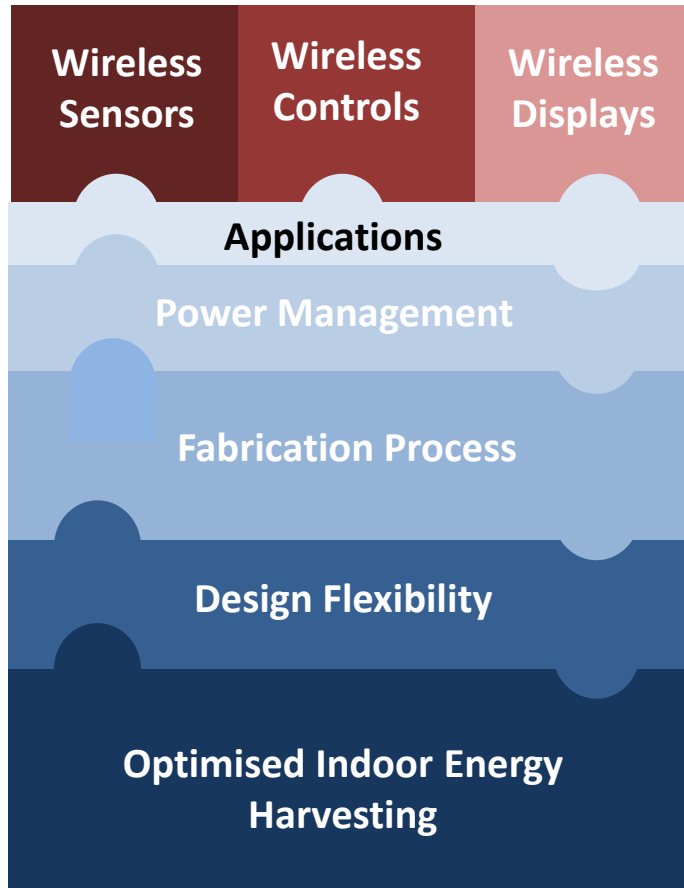


## Sensor Prototyping and Device Integration Projects

Development  
Partners



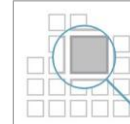
# SolarPrint Technology Platform



**Reference Designs** with Industry Partners



**IP & Know-how** in unique DSSC process techniques



**Unique Form Factors** for custom projects



**Patent** in DSSC Design for indoor light



**JDA** for indoor light specific electrolyte



**IP & Know-how** in DSSC for indoor performance

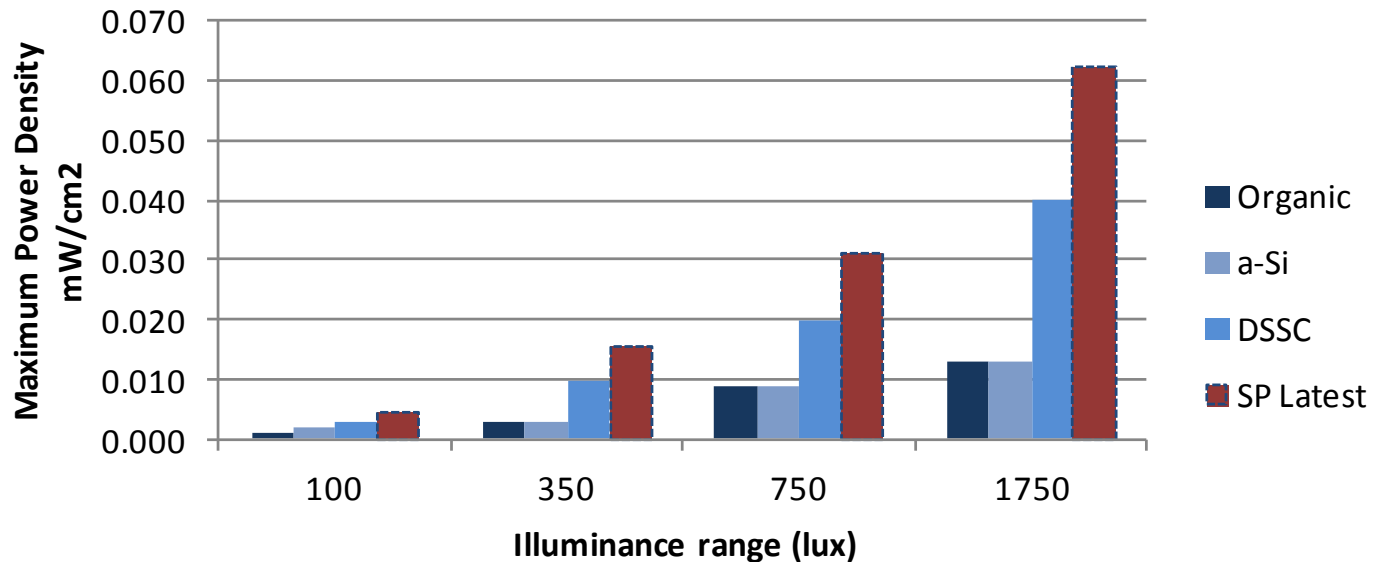
- Materials formulation
- Materials combination
- Layer Structures



# Competition – Other Indoor PV

## SolarPrint DSSC – leading indoor Energy Harvesting

Maximum Power Cell Comparisons under Fluorescent Conditions



Texas Instruments Indoor Energy Harvesting PV analysis, Presented at PVSEC, Hamburg 2011

# Team



**Dr. Mazhar Bari**  
CTO (20 years in  
Nanotechnology and  
Commercialisation)

**Rory Timlin**

General Manager  
(15+ years in Tech Programme Management)



**Maja Sourdain**  
Senior Materials Eng.  
(10+ years in materials)

**Donal Murphy**

Finance Director  
(Chartered Accountant)



**Mike Dolan**  
Senior Process Eng.  
(30+ years process eng &  
manufacturing)

**Roy Horgan**

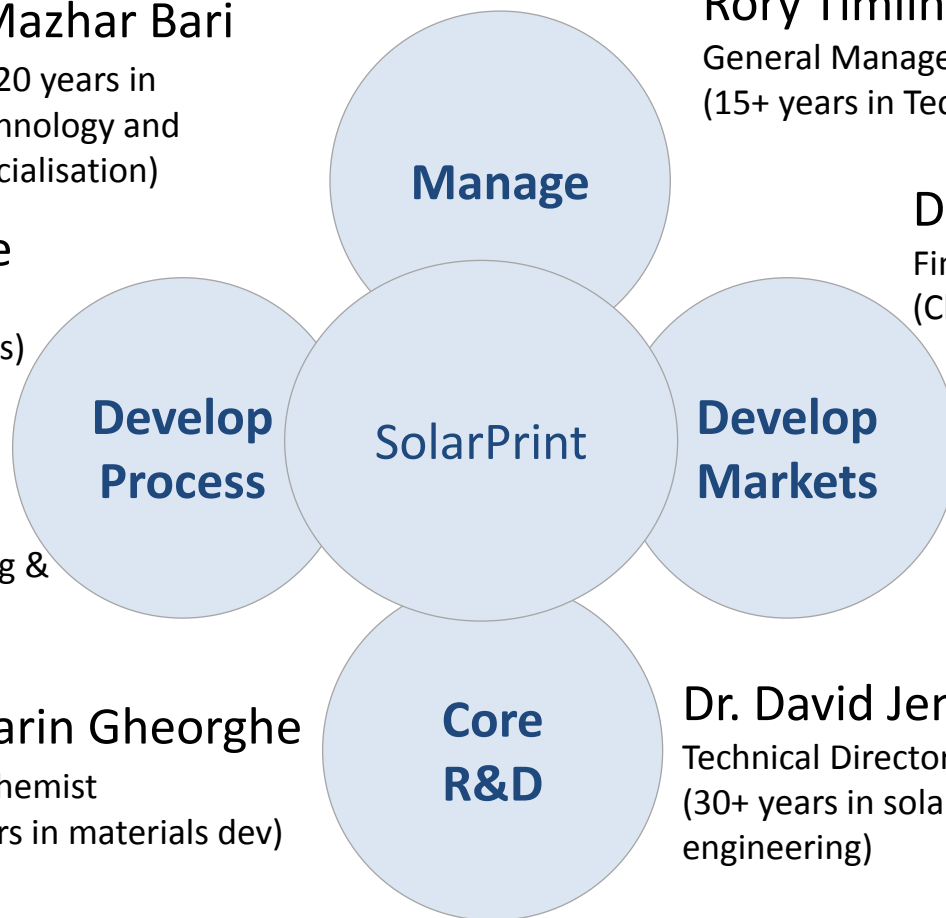
Business Dev. Director  
(ex-Financial Services)



**Dr. Marin Gheorghe**  
Senior Chemist  
(30+ years in materials dev)

**Dr. David Jeng**

Technical Director  
(30+ years in solar industry & device  
engineering)

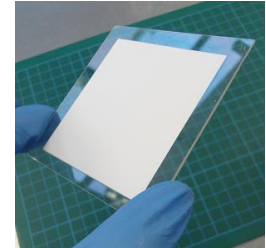


# Business Model

...Develop IP

## Product Innovation

IP & Know-How in DSSC Chemistry, Design & Process  
Develop higher indoor power devices that are fully scalable



...Develop Markets

## Commercial

Target Markets where higher indoor power & device design  
command a defensible premium



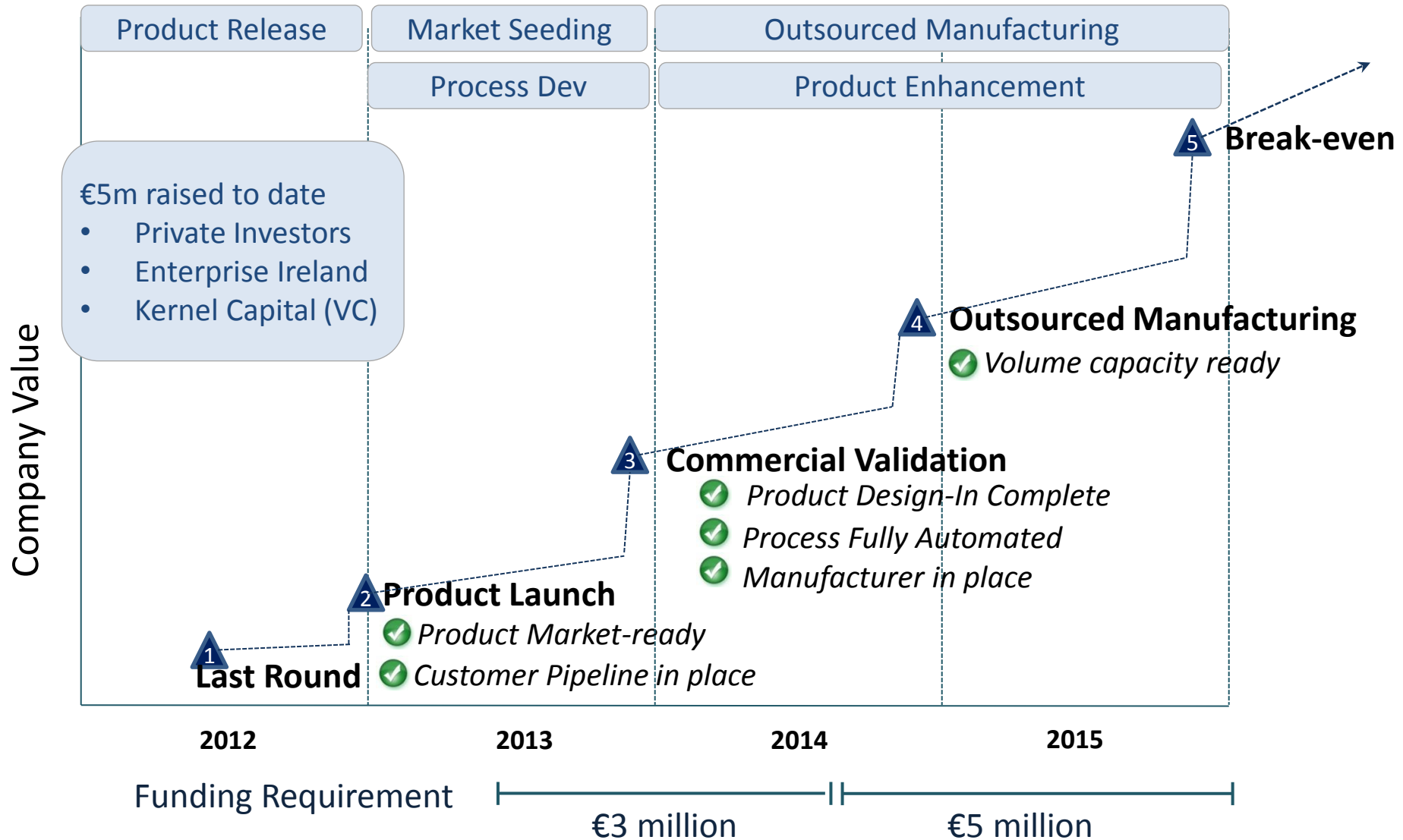
...Develop Scale

## Manufacturing

Outsource Production to Manufacturing Partner



# Funding & Value Creation



# Thank You & Questions



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