



# INNOVATION IMMERSION PROGRAM

2<sup>nd</sup> Edition – Energy Generation



# INNOVATION ACTIVITIES

**Sourcing** for innovative products, services and processes that can support compliment or further core business

**Free Electrons**, a pioneering international acceleration program addressing global startups

**Focus on innovation priorities** strengthens innovation link between BU's

**Websummit** sponsorship to reinforce EDP Innovation ecosystem and to leverage international traction

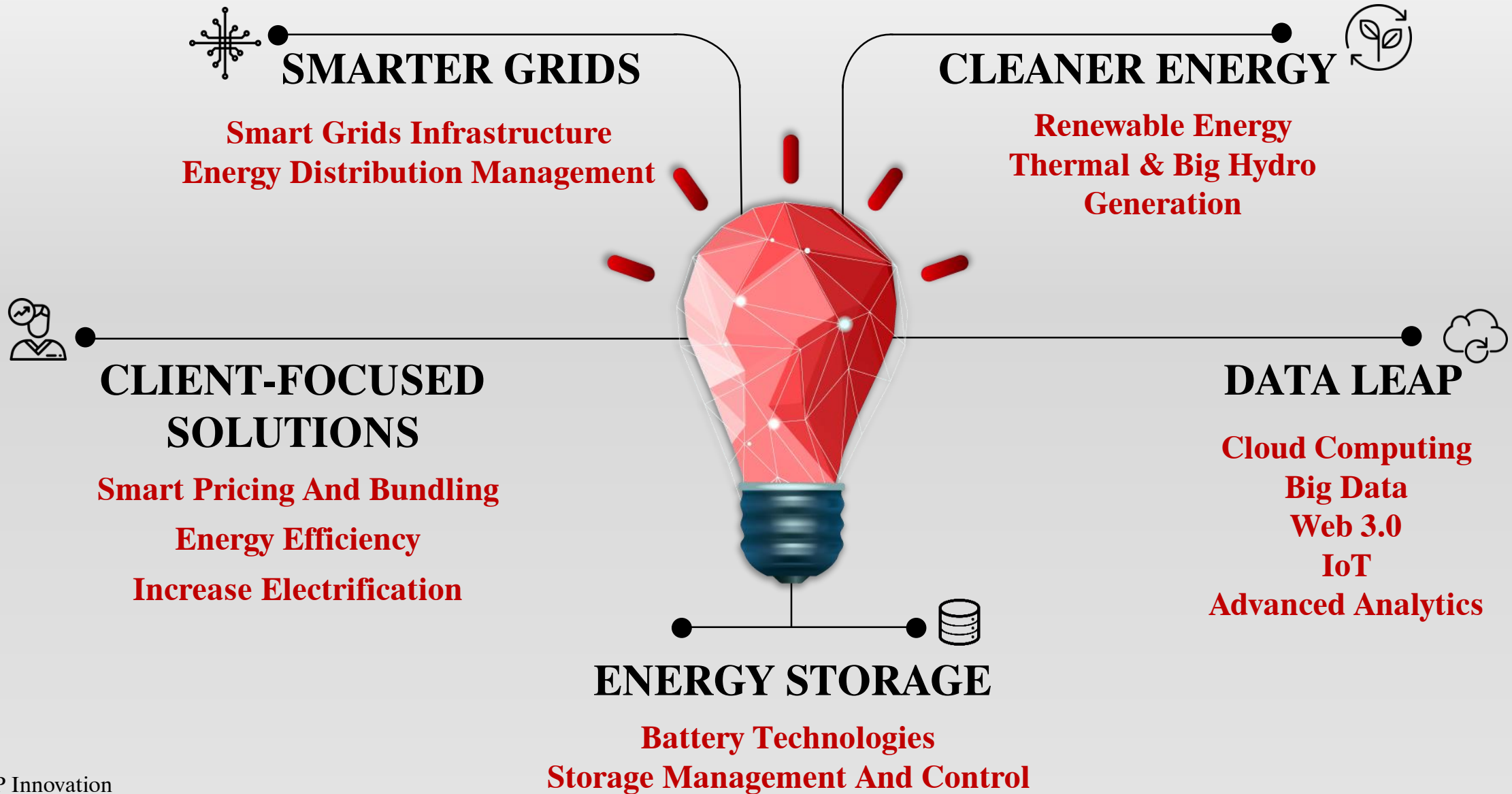
**Corporate Venture Capital** fund to invest in promising business propositions

**Interim management program** connecting EDP executives and startups

Successful startup **incubation program** in Portugal expanded to Brazil and Spain



# INNOVATION PRIORITIES



# ONGOING INNOVATION PROJECTS

Non-exhaustive

SMARTER GRIDS

PREDIS



- Uses open source tools and Big Data technologies to provide disaggregated load and generation forecasts in the distribution network;
- Increases forecast performance by modelling each consumption/generation point individually with near real-time updates as new smart-meter data is available;
- Improves energy balance, revenue assurance, fraud, grid dispatch and grid planning.

CLEANER ENERGY

WINDFLOAT



- Floating offshore structure using a semi-submersible wind turbine foundation, developed by Principle Power;
- Phase 1 (2 MW prototype) successfully completed (2011-2016);
- Pre-commercial phase in implementation, located 20km off Viana do Castelo with 3-4 units and an installed capacity of 25MW (expected year of completion: 2019).

CLIENT-FOCUSED SOLUTIONS

Re:dy



- An IoT home energy meter that communicates wirelessly and is accessed through an intuitive, award winning, smartphone app;
- Customers monitor, control and manage the consumption of household assets, solar panels and batteries in real-time.

DATA LEAP

SINAPSE



- A machine-to-machine communication platform that uses electricity powered assets in the LV grid to interact with external partners and receive georeferenced outage alerts in real-time;
- The system enables customers to send power-related events in electricity powered assets over the internet due to partnerships with market leading communications companies.

ENERGY STORAGE

VEHICLE-2-GRID



- EDP is testing Vehicle-to-Grid charging stations that enable EV's to return energy back to the grid;
- New functionalities are being developed to understand the potential for self-consumption, local energy management, grid support and the integration of renewable technologies electric system optimization.

# EDP VENTURES | CORPORATE VENTURE CAPITAL

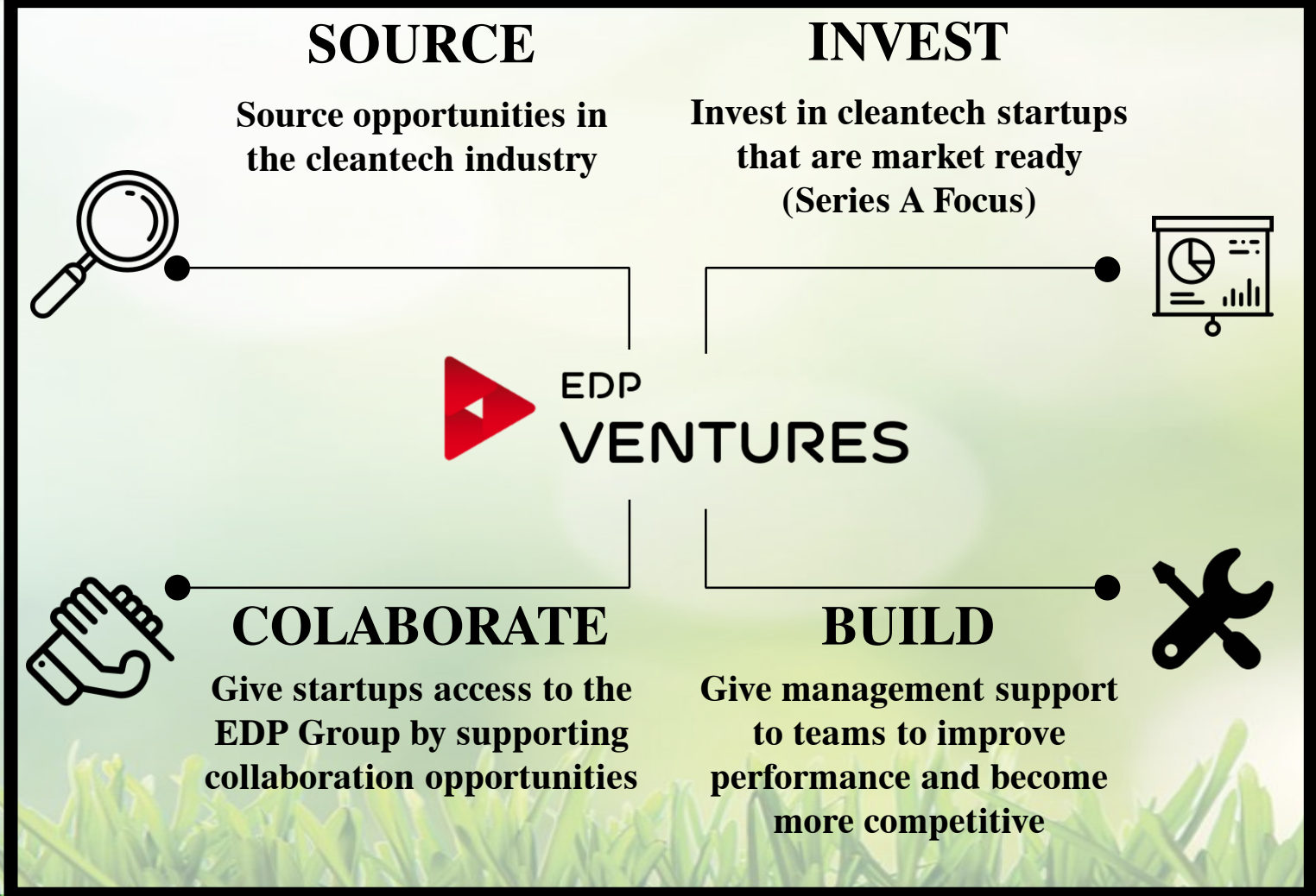
Non-exhaustive

**9 Investments**

**Investee's Revenue - €40M**

**>30 companies analyzed in 2016**

**Focus - Seed & Series A**



- dataSonar**  
Reaching insights
- PRINCIPLE POWER**
- prodrone**  
Infrastructure automation solutions
- feedzai**
- EGG ELECTRONICS**
- ARQUILED**  
BRIGHT NEW FUTURE

# EDP STARTER | INCUBATION PROGRAM

Incubates 30 startups

Export technology: 15 countries

+1200 applications



## SCOUT

Scout for innovative products, solutions and services in the energy field



## COLLABORATE

Instigate collaboration between EDP Group and startups



EDP STARTER



## TRANSFORM

Support the transition from innovative products, solutions and services to startups



## ACCELERATE

Help startups improve their performance and become market ready

Non-exhaustive

Delfos  
Intelligent Maintenance

FIBERSAIL  
Shaping the structures of tomorrow

GRAPHENEST  
Graphene and Nanotechnology

dataSonar  
Reaching insights

GLARTEK

BEON

# CO-CREATION | INNOVATION SOURCING



**Open Innovation Prize**



**Re:dy Challenge**



**IoT Hackathon**

EDP Innovation promotes 3 yearly events to develop and support innovative cleantech projects and ideas that will accelerate innovation in the energy sector

# PRESENCE IN INNOVATION EVENTS | WEBSUMMIT

169 participants in  
Carousel Pitch

169

51 startups chosen for speed dating  
with EDP Executives

51

5 companies negotiating  
pilot projects with EDP

5

Phase 1

Phase 2

Phase 3

# FREE ELECTRONS | PARTICIPANT OVERVIEW

## COMPLETED APPLICATIONS

301

44 Countries

\$2.5M avg  
Funding

## SHORTLISTED

30

10 Countries

\$6.5M avg  
Funding

## 12 FINALISTS BY SECTOR



Generation

1



Grid Operations

5



Electric Vehicle

1



Renewable Energy

2



Customer Centric

3

# WE ARE PROPOSING FOUR ACTIONS TO GET US THERE

## CEO Car Pitch

Executive Board Members will, host a startup in their car (driving to/from office) to hear their pitch and discuss the proposal



## Silicon Valley Outpost

Establish collaborative arrangements with the best innovators in the World



## EDP executives "immersion" in Silicon Valley

Bring our people to innovation hotspots allowing them to learn new frameworks, interact with cutting edge startups and corporate disrupters

## EDP's message in a bottle

Our video reverse pitch to Startups asking for business ideas to address sector challenges

# IMMERSION OF EDP'S EXECUTIVES IN SILLICON VALLEY AND OTHER HUBS



4 Annual Editions

15 Participants per Edition

Generation/ Grid/Retail Focus

Phase 1

## PRE-ENGAGEMENT

In collaboration with EDPUniv hold Design Thinking and Lean Startup workshop in Lisbon

Phase 2

## INOVATION IMMERSION

- Leverage the Free Electrons accelerator program
- Interaction with key accelerators and promising startups
- Discussion and learnings from corporate disrupters

Phase 3

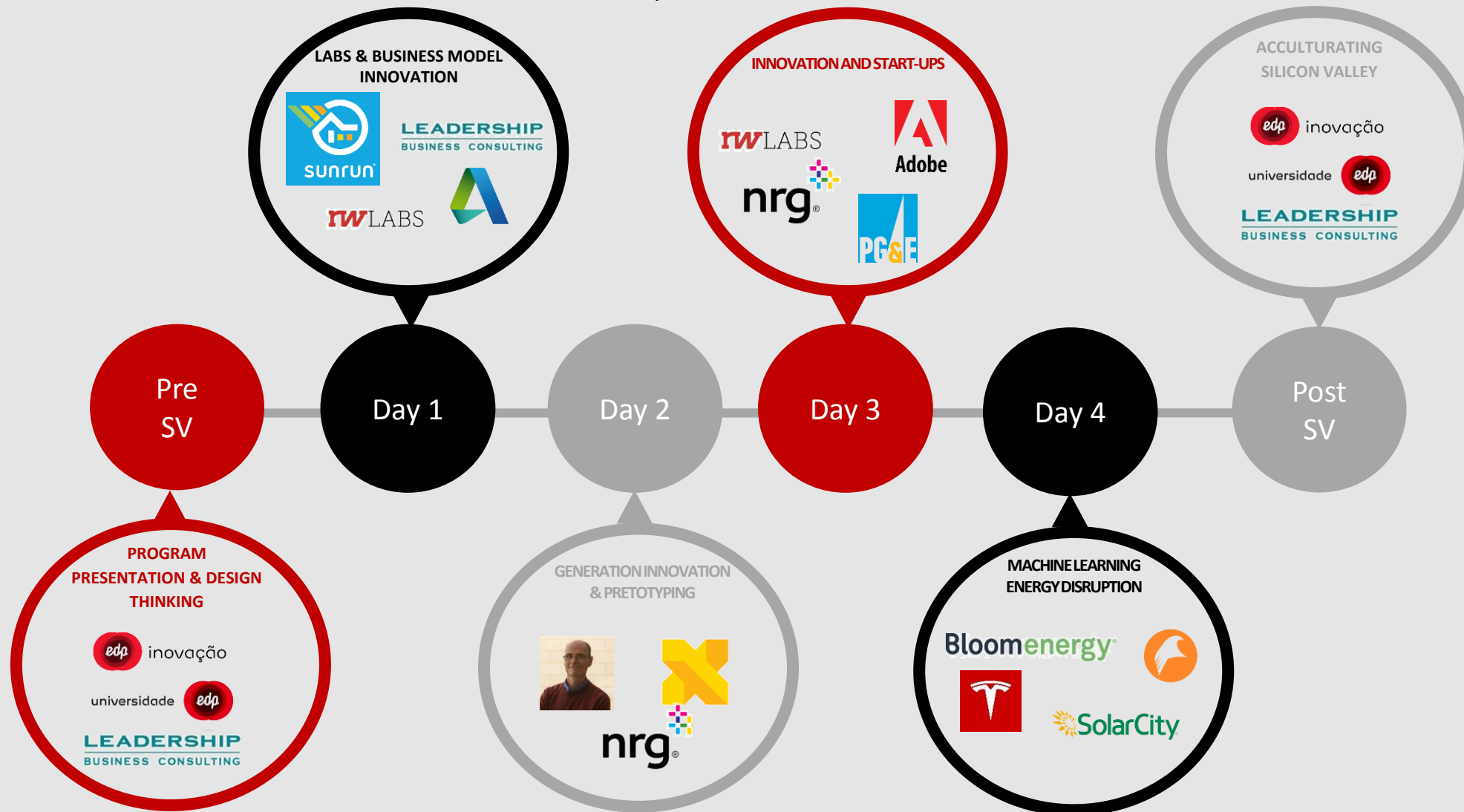
## FOLLOW UP ENGAGEMENTS

- Develop opportunity sourced
- Champion a startup
- Ongoing innovation projects
- Interim Management platform
- EDP Starter Meet Ups

# SECOND EDITION | EDP INNOVATION IMMERSION PROGRAM

## PRELIMINARY PROGRAM – GENERATION FOCUS

July 10th – 13th 2017



# Business Model Innovation

## Labs & Business Model Innovation

Monday  
Day 1

SAN FRANCISCO

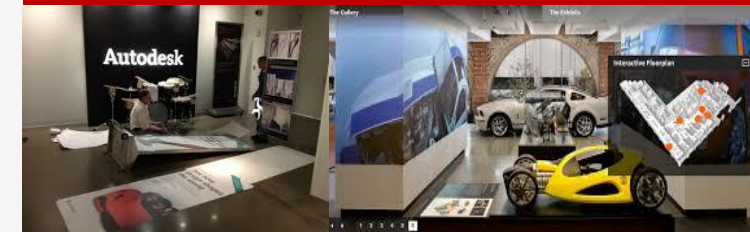
- 08:30 – 8:45** Meet in Hotel lobby and walk down to Port of San Francisco, Pier 1.
- 08:45 – 9:45** Opening program session with Carlos Oliveira and Torben Rankine on “Innovation Mindset”
- 10:00 – 12:00** Visit to **Autodesk** – session with JJ Stott around Autodesk Innovations and impact of Virtual Reality on Industries
- 12:00 – 13:30** Lunch break/Free time
- 13:30 – 15:30** Visit to **ReadWrite** Labs with the Director of Labs, Craig Dudenhoeffer, and pitching with 2/3 starts-ups.
- 16:00 – 17:30** Visit to **SunRun** and session with Nick Smallwood, Senior Director of Business Development on “Residential Solar and Business Model Innovations”
- 17:30 – 18:00** Return to the Hotel

### KEY TOPICS COVERED:

Impact of VR/AR on businesses

Pitch Sessions with Start-ups

Challenging business models for residential solar offering



**JJ Stott**  
Marketing Specialist,  
Autodesk



**Craig Dudenhoeffer**  
Director of Labs,  
ReadWrite Labs



**Nick Smallwood**  
Senior Director, Business  
Development, Sunrun

# Generation Innovation and Prototyping

## Energy Portfolios and Innovation in Practice

Tuesday  
Day 2

SAN FRANCISCO & SILICON VALLEY

- 08:30** Departure from the Hotel
- 09:00 – 10:00** Visit to **NRG Energy/Renewables** and open discussion around Energy Solutions and Portfolios with Craig Cornelius, SVP NRG Energy.
- 11:00 – 12:30** Apex Innovators Workshop with **Alberto Savoia**, Co-Founder of Pretotype Labs and former engineering director at Google, about “Prototyping as a part of your innovation process”
- 12:30 – 13:00** Lunch Break
- 13:30 – 15:30** Apex Innovators Workshop with Alberto Savoia continued
- 16:00 – 17:00** Visit to **Google X’s** Battery Lab and session with Ramesh Bhardwaj, battery innovator at Google X.
- 17:00 – 18:15** Return to the Hotel

### KEY TOPICS COVERED:

- Focus on value creation for the end user with profits for the company
- Prototyping, Prototyping and Design Thinking – comparison with engineering and management thinking. Fundamentals and practical applications in management
- Building a culture of innovation

### Alberto Savoia

Former Engineering Director at Google ,  
and Entrepreneur  
Author of “Pretotype IT”.  
Developed the concept of Prototyping at Google  
Collaborates with Stanford University



### Craig Cornelius

Senior Vice President,  
NRG Energy



### Ramesh Bhardwaj

Director, Battery Group, X

# Start-ups and 3 Horizons of Innovation

## Start-ups and Innovation Methodologies

Wednesday

Day 3

### SILICON VALLEY

- 07:00** Departure from the Hotel
- 08:00 – 12:00** Visit to the **Plug and Play Tech Center** and pitch sessions with Energy companies: Energy & Sustainability Batch 1 Selection Day
- 12:30 – 14:00** Session with **Steve Blank** on “50X Innovation”
- 15:00 – 16:30** Visit to **Flex**, the 3<sup>rd</sup> largest electronics manufacturer in the world, and tour of the facilities “Making Intelligent Products in a Connected World” with Benjamin Le, Executive Briefing Center Specialist
- 16:30 – 17:45** Return to the Hotel

#### KEY TOPICS COVERED:

- Pitch session with Energy and Sustainability start-ups
- Leveraging Lean Start-up methodologies and the 3 Horizons of Innovation
- How to design and manufacture Intelligent Products in a Connected World



**Wade Bitaraf**

Director of Energy,  
Plug and Play Tech Center



**Steve Blank**

Adjunct Prof. Stanford  
Lean Start-up enabler



**Benjamin Le**

Customer Experience,  
Flex



# Machine Learning & Renewables

## Leveraging Machine Learning & Energy Innovation

Thursday  
Day 4

SILICON VALLEY & SAN FRANCISCO

07:45	Departure from the Hotel
09:00 – 10:00	Visit to <b>Bloom Energy</b> and discussion with Mohan, VP of Global Business Development around “The Bloom Journey: changing the way the world generates and consumes energy”
10:30 – 11:30	Visit to <b>Falconry</b> and “Using Patterns in Real-time for Operational Excellence” with Nikunj Mehta, CEO and Crick Waters, SVP Business Development.
12:15 – 13:00	Lunch
13:00 – 14:00	Session around grid-scale solar-plus-storage plants with Andres Pacheco, Senior Business Development Manager of <b>Tesla Renewable Energy</b>
14:30 – 15:00	Program Assessment and Debrief
15:00	End of Program

### KEY TOPICS COVERED:

- Innovations in renewable energy generation
- Trends in Machine Learning and impact on maintenance and operations



**Mohan Natarajan**  
Managing Director, Global Strategy  
and Business Development,  
Bloom Energy



**Nikunj Mehta**  
Founder and CEO  
Falconry



**Andres Pacheco**  
Business Development,  
Tesla

