



e-Learning Workshop: Solar Policy Interpretation & Implementation Processes

Project Management and Monitoring

Presented by: Kshitiz Vishnoi

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- ▶ Project Management Theory
- ▶ Solar PV Project Management overview
- ▶ Scoping a Project – steps involved
- ▶ Project Implementation Models
- ▶ Works Scheduling
- ▶ Project Monitoring

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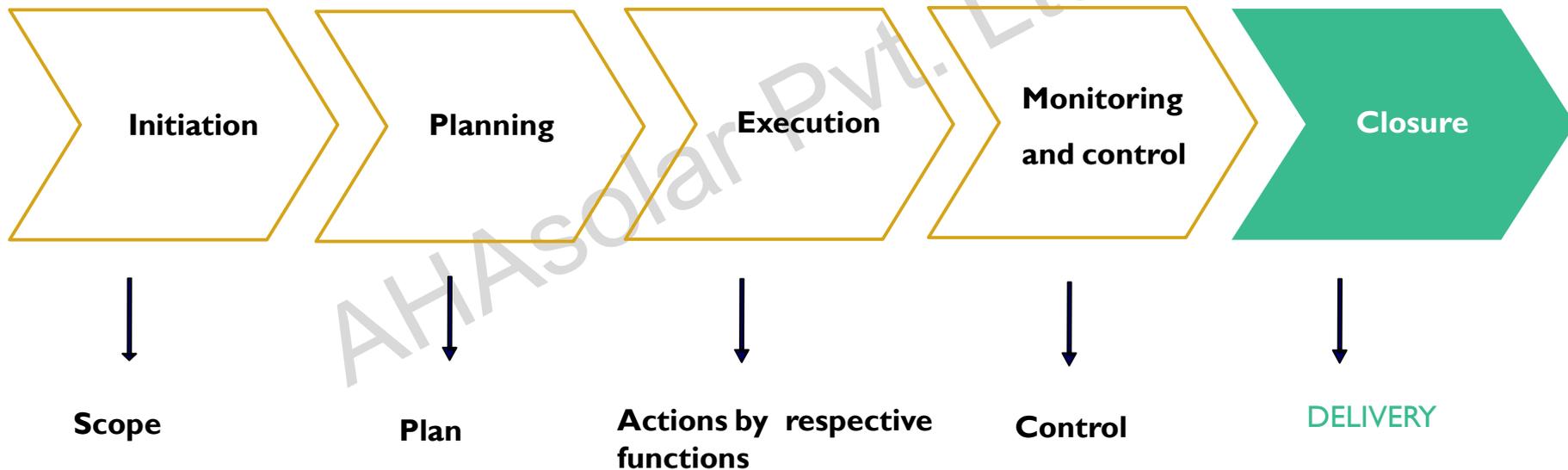
What is Project Management

- ❖ Application of knowledge, skills, tools and techniques to a project activities to meet project requirements

- ❖ Why it is Important
 - ▶ Defines a plan
 - ▶ Establishes a schedule
 - ▶ Enforces and encourages teamwork
 - ▶ Maximises resources
 - ▶ Manages Integration
 - ▶ Controls cost
 - ▶ Manages change
 - ▶ Managing quality
 - ▶ Learning from failure

What is Project Management

❖ Achieved through 5 Process Steps



▶ Major steps illustrated:

- ▶ Identifying **Requirements**
- ▶ Addressing various **needs, concerns** and **expectations** at all stages of project



Novelty in Solar PV Projects



Strict Timelines



Tight Budget



Lack of homework for getting projects sanctioned

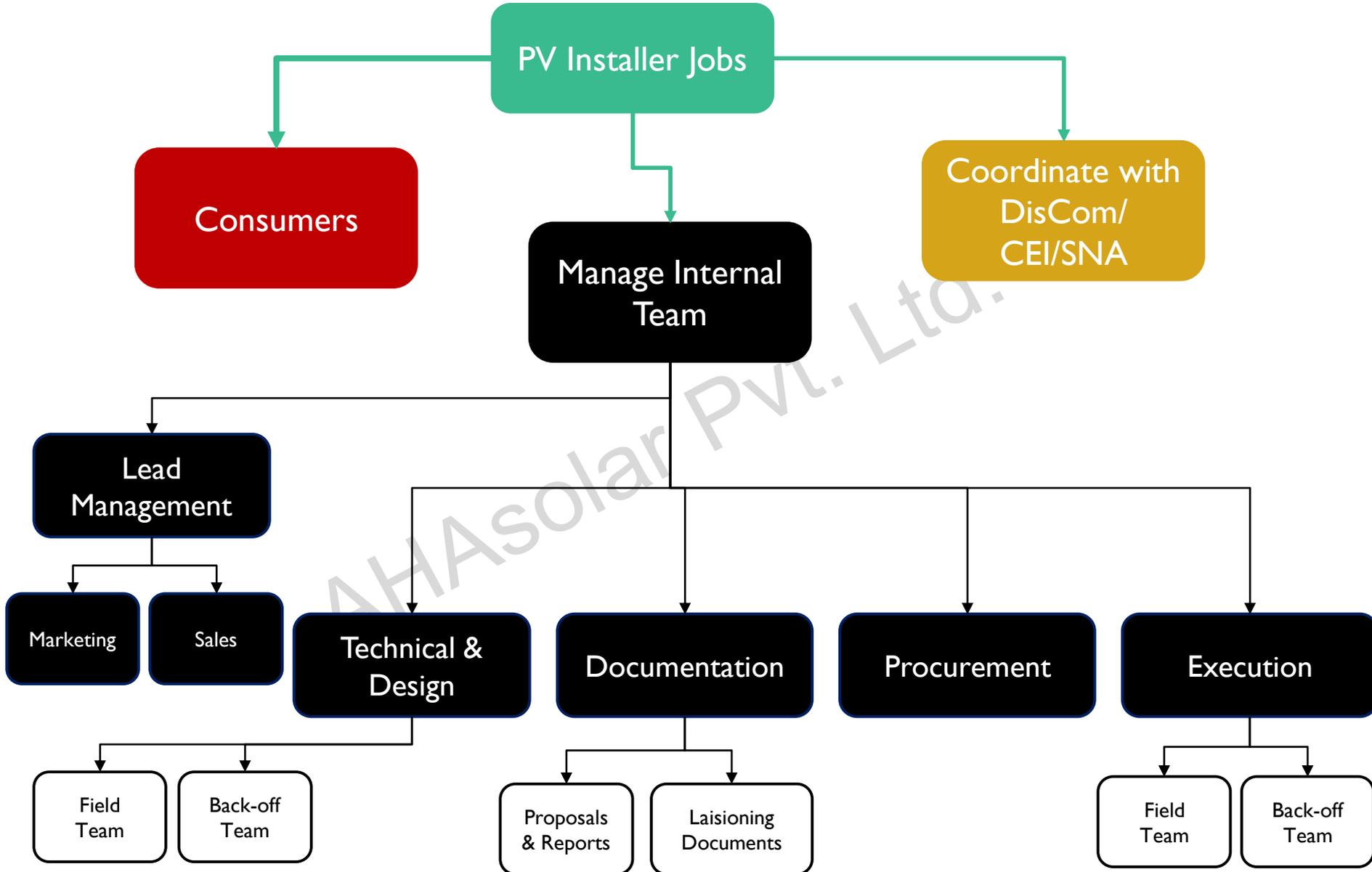


Limited experience of live projects and lack of experienced skilled workforce



Entry of first timers – Developers, EPC companies, Consultants, Financial Institutes

Tasks in Project Management (Installer Perspective)



▶ Step I: Identify And Understand Your Leads

(Shifting from OUTBOUND to INBOUND)

- ▶ Identify and quantify the Lead source
- ▶ Assign lead to Sales Team/ Individual
 - ▶ Based on location of the project
 - ▶ Work load of the Team
 - ▶ Size of the Lead etc.
- ▶ Track and Measure your Leads
 - ▶ Track and measure throughout the entire sales cycle
 - ▶ Measure sales performance
 - ▶ Measure marketing and sales ROI



Plan: Project Implementation Types

- ▶ **Type-1: Consulting and EPC**

1) Conceptualization 2) Financing 3) Design 4) EPC

- ▶ **Type-2: EPC**

1) Engineering 2) Procurement 3) Construction

- ▶ **Type-3: EPC Lite**

1) Engineering 2) Part-Procurement 3) Construction

- ▶ **Type-4: EPC Part and O&M**

1) EPC 2) Limited Period O&M

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- ▶ Solar modules
- ▶ Inverters
- ▶ Module Mounting structures
- ▶ Cables and connectors
- ▶ Evacuation infrastructure w/wo transformer and meter
- ▶ Hardware for mounting modules
- ▶ Grounding/Earthing for different components
- ▶ Lightning protection
- ▶ Data monitoring and weather station

- ▶ Specifications, Part numbers
- ▶ Delivery schedule
- ▶ Packing and forwarding system
- ▶ Accompanying documents requirement
- ▶ Test certificates – Own and Third party
- ▶ Warranties
- ▶ Identification standards on packaging and on components
- ▶ Payment terms
- ▶ Penalties for non-performance
- ▶ Spares during and post execution
- ▶ Scope of suppliers on site
- ▶ Testing and commissioning

- ▶ Contractors' licenses to work
- ▶ Precise definition of scope of work
- ▶ Schedule of work and manpower allocation
- ▶ Advance bank guaranties
- ▶ Performance bank guaranties
- ▶ Surprise checks and audits
- ▶ Documentation requirements
- ▶ Certification for work acceptance and payments

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- ▶ Requirement analysis
- ▶ Time action planning of material
- ▶ Manpower
- ▶ Equipment
- ▶ Facility and amenity requirements
- ▶ Contingency planning – emergency response

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- ▶ Just In Time deliveries
- ▶ Movement of material – up to the site and within the site
- ▶ Availability of tools and tackles
- ▶ Warehousing
- ▶ Record keeping



- ▶ Timely Execution
- ▶ Cost effective
- ▶ Lowest possible surprises
- ▶ Ensuring lifetime performance
- ▶ Monitor with Accountability
- ▶ Avoid later phase investments
- ▶ Customer delight
- ▶ Compliance to applicable rules and regulations
- ▶ Zero accidents

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Work Division: Sourcing Contractors for

DC Electrical Works

- ✦ Structure erection
- ✦ Module mounting
- ✦ Module interconnections
- ✦ Earthing of modules and structures
- ✦ Cabling till inverters through combiner boxes

AC Electrical Works

- ✦ Inverters to transformers with protective gear
- ✦ Metering and Fuses
- ✦ Interconnection to grid
- ✦ Auxiliary power requirement like plant lighting, AC, etc.

Work Division: Sourcing Contractors for Civil Works

- ✿ Foundations for structures
- ✿ Waterproofing
- ✿ Cabling routing structures if needed
- ✿ Water layout and Drainage
- ✿ Security

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- ▶ Commissioning of the Project
- ▶ Site Cleaning
- ▶ Return of unused components and Tools
- ▶ Project Closure Report
- ▶ In case of Subsidy based projects, document preparation of Subsidy Documents
- ▶ Receipt of final payment & Record Closure

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AHA! Solar Project Management Solution



Faster Communication

Make the most out of modern technology by enabling your team to connect instantaneously anywhere, whether it's for just-in-time remote troubleshooting or to share the latest updates.



Better Data Collection

We know how important it is to have context before you make decisions. Our technology is designed to get you the whole story in one unified place, from form data to pictures to messages and more.



Easier Project Management

Turn project status tracking from a nuisance into a breeze. By simplifying everything for you from task assignment to analytics, you regain the power and time to make better decisions.



Custom Made For Site Use

The technology is here, so take advantage of it! AHA! Solar is packaged with tons of features that enable it to work successfully for both field and office-bound folks, so everyone can stay in the loop.



Less Administrative Work

Hours upon hours a week are spent on admin work, from reports generation to data clearing. AHA! Solar provides automation that lets you spend your time where it's actually needed to have a AHA moment in life!

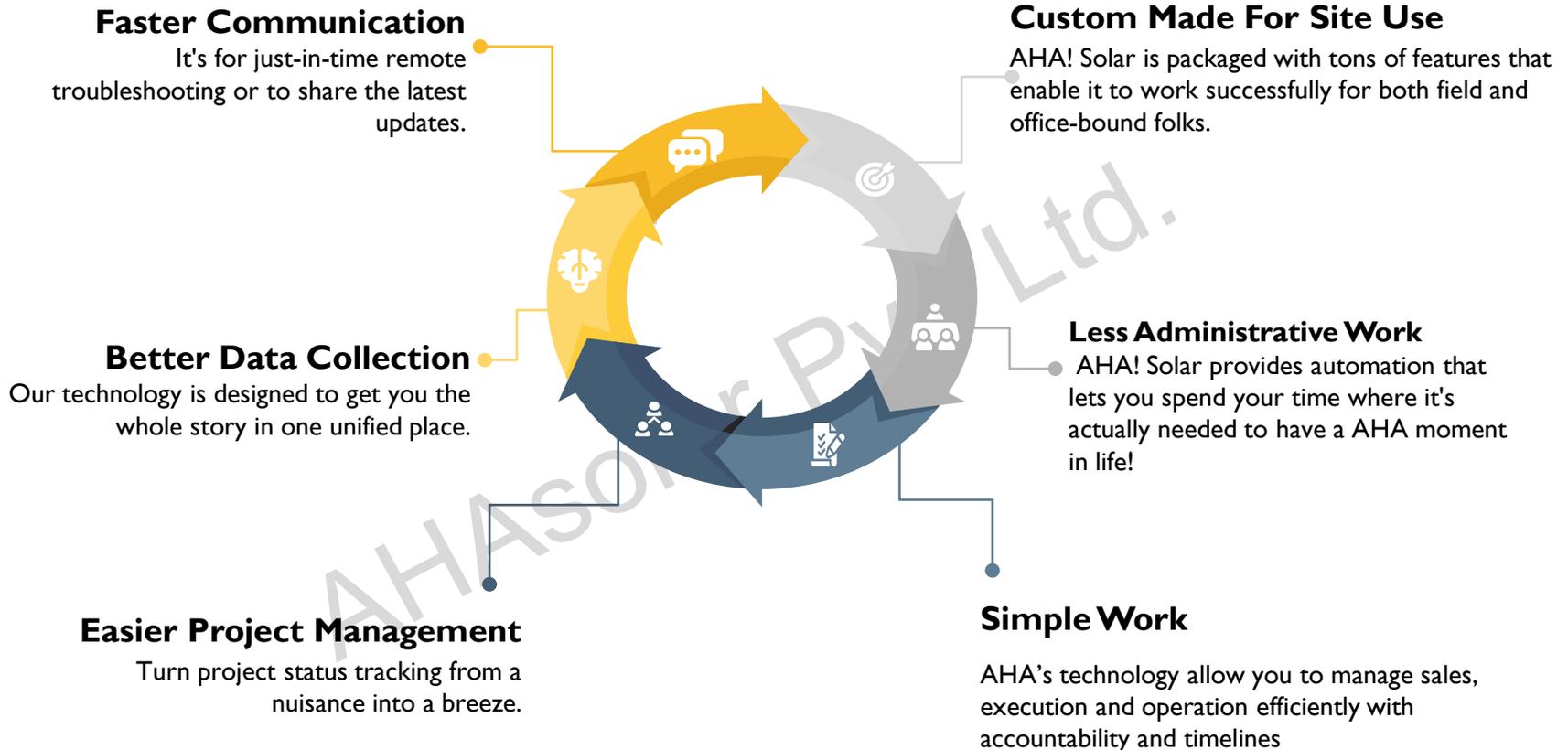


Simple Work

AHA's technology allow you to manage sales, execution and operation efficiently with accountability and timelines.

- ▶ *Web and App based Lead Management; Task Management; Project Management; Online & Offline Site Survey; Design & Plant Layout; File Sharing Integration*
- ▶ *Cloud Technology; Project Proposal; Execution Reminders Reports and Summary*
- ▶ *Admin Control*

Take Control of Your Solar Execution Growth



Effortless Project Management

Graphical Analytics

Build reports and aggregate analysis against real time data.



Task Assignment And Tracking

Assign Tasks to team members and track centrally by status and due date.



Configurable Roles And Access Controls

You can customize who has access to which app and in what stage of the workflow.



Organize Clients And Projects

Multi-level hierarchy tree can be used to organize and manage project data by client, teams and stage.





Mobile Optimized Smart Forms

Unlike other software AHA! tunes form experience specifically for smart phone screens.



Data Uploads Powered

AHA!'s system automatically uploads all data and synchronizes across multiple devices on the AHA! platforms while alerting the concerned team members.



Available Even When Offline

Create and edit site survey, add images and videos and we'll sync it all up when you get a connection.

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Works on Cloud
Technology & instant
synchronize across all
devices

Streamline
Processes with well
researched formats





MY LEADS 139

MY LEADS		
Still Lead	Converted Inquiry	Archived
5	134	0

AHA LEADS 645 (9198.19 kWp)

AHA LEADS			
Pending	Accept	Reject	Forward
0	645	0	0

INQUIRIES 5 (22.00 kWp)

INQUIRIES		
Not-Assigned	Assigned	Total
0	5	5

645
My Projects
9198.19 kWp

236
Site Survey
436.00 kWp

61
Proposal Generated
143.00 kWp

11
Work Order
11.00 kWp

2
Execution Started
0.00 kWp

6
Commissioning
0.00 kWp

DEPOSIT

Received	Paid
0	0

ESTIMATE

Received	Paid
0	0

TOTAL EXPENSE ₹2792132.00

CONNECTED CUSTOMERS 2

OPEN COMPLAINS 3



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