

MAHD Leadership Role Guide

Creating an Agile-focused Organization to Deliver Success

Introduction

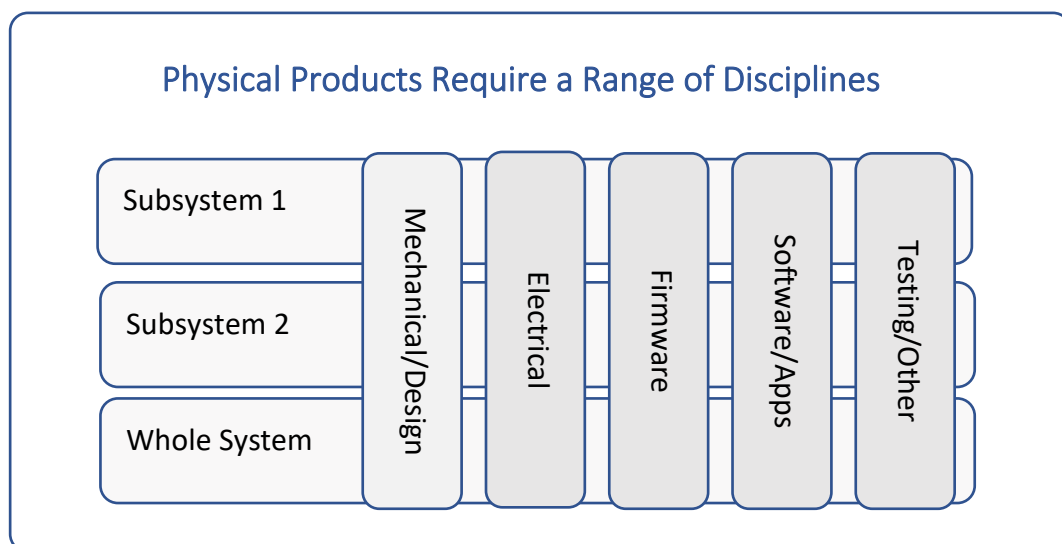
To effectively lead and manage the Modified Agile for Hardware Development (MAHD) Framework, we discuss several factors and describe the primary roles below to guide your planning as you build out your team. In small projects, these roles may be combined and shared. In large projects, they may be further separated into focused roles. The titles are not important. What is important includes:

1. Each responsibility has someone assigned to lead it and that person has the skills to succeed.
2. The relationships and interaction of the roles are clear to all.
3. The roles are aligned with the scope and objectives of each project.

The Complex Nature of Hardware Systems

Even the simplest hardware-based product development effort often requires a wide variety of disciplines including mechanical, electrical, firmware, design, testing, software, and others. The scale and complexity of the projects, as well as your teams' preferences, will impact how you organize your agile teams, define leadership roles, and manage your agile process.

Consider the diagram shown here. This project may be comprised of one agile team, an agile team for each subsystem, an agile team for each discipline or some combination. In the next sections we look at the range of MAHD roles, a range of projects and some typical structures based on system complexity and then provide a sample job description for four of the primary MAHD leadership roles.



Summary of MAHD Roles

	(Agile) Product Manager	Agile Project Manager	Product Owner	Agile (MAHD) Coach	Agile Program Manager
Summary	<ul style="list-style-type: none"> Writes/updates user stories and sets major priorities Key decision-maker at iterations Drives customer engagement strategy External/market facing 	<ul style="list-style-type: none"> Maintains big picture Cross-discipline/cross-subsystem coordination Facilitates iteration planning and retrospectives Sr. coach on MAHD techniques Internal/company facing 	<ul style="list-style-type: none"> Day-to-day customer evangelist Maintains backlog, sets priorities, and prepares for sprint planning Guides acceptance criteria/validation for each sprint and iteration Executes customer engagement plan Internal/team facing 	<ul style="list-style-type: none"> Leads sprint/iteration retrospectives Coaches on MAHD process Removes friction and builds positive team dynamics Team facing 	<ul style="list-style-type: none"> Manages multiple projects and Agile Project Managers Organizes and leads cross-project iteration plans and company roadmaps Internal/external facing
Required?	Yes	Yes	Role - Yes Person - No	Role - Yes Person - No	No
Full Time?	Yes	Yes	Optional	Optional	Yes
Notes	Often outside the daily activities of agile teams. For small teams, this role can also assume some Product Owner duties.	A key role of MAHD to facilitate Onramp Iteration planning, track cross-discipline progress and drive the MAHD Framework. An agile leader first and project manager second.	For small teams, this role can be split between the Agile Project Manager, Agile Coach and Agile Product Manager, but a critical role for larger teams.	While someone must be responsible for smooth teamwork, this role can be shared by others in smaller teams.	For large and multiple projects with many agile teams, a higher-level manager of Agile Project Managers should also be considered.

Common Role Questions

- How does a functional leader role change under the MAHD Framework?** In Software, a traditional development manager often becomes a product owner or scrum master as the team moves to agile. For MAHD, functional leaders in mechanical, electrical, etc. will typically maintain their roles, but will participate in agile teams and may also be an Agile Coach on a full or part-time basis.
- Why would an Agile (MAHD) Coach (similar to a “Scrum Master”) be considered optional?** The responsibility is not optional, but being a dedicated person is. This role can be assumed by functional leaders or the Agile Project Manager.
- Our Software team has already transformed to scrum, do they need to change?** Not significantly, but how they interact with the overall project should change. In the MAHD iteration plan software will typically be treated as a “swim lane” to ensure alignment at critical points with other functional teams.
- The Product Owner role in Scrum is critical! Why does MAHD consider this role optional?** The responsibilities of a “Product Owner” are also critical to MAHD. The difference is that a Product Owner in software focuses on writing user stories, prioritizing backlog tasks and validating acceptance criteria. Each of these agile elements are modified for hardware, so the role of Product Owner must also be reconsidered in the MAHD Framework.

System Complexity Drives Agile Team Formation

Simple System

Characteristics	Examples	Typical Team	Typical MAHD Roles	Agile Teams
Simple, discrete products	<ul style="list-style-type: none"> Coffee Maker Handheld Electric tools Consumer Audio 	<ul style="list-style-type: none"> 2-5 Mechanical Engineers 2-5 Electrical Engineers 2-3 Testers Light FW/SW/Apps teams 	<ul style="list-style-type: none"> Agile Project Manager Dev Leads as Agile Coaches Product Manager as Product Owner 	Typically, one cross-discipline team.

Medium-Complexity System

Characteristics	Examples	Typical Team	Typical MAHD Roles	Agile Teams
More complex products with several small sub-systems and various components	<ul style="list-style-type: none"> Industrial Printer Commercial Food Processing Machines Laptop Computer Simple Medical Devices Complex Consumer Electronics 	<ul style="list-style-type: none"> 5-20 Mechanical – various specialties 5-20 Electrical – various specialties Various designers, architects, system engineers and testers Larger FW/SW/Apps teams 	<ul style="list-style-type: none"> Agile Project Manager External Facing Product Manager Product Owner per one or more subsystem Dev Leads as Agile Coaches 	<p>Varies by project and team preference.</p> <ul style="list-style-type: none"> Option 1: An agile team for each sub-system Option 2: An agile team for each discipline Option 3: Hybrid – Large subsystems have dedicated agile teams. Other form a separate “whole product” team.

High-Complexity System

Characteristics	Examples	Typical Team	Typical MAHD Roles	Agile Teams
Complex systems with large, integrated systems and more subsystems	<ul style="list-style-type: none"> Complex Medical Devices Automobiles Logistics Robotic Systems Aircraft Any Complex Multi-Component System 	<ul style="list-style-type: none"> Very large mechanical, electrical, and specialized R&D professionals Range of testing & certification specialties Wide range of FW, embedded and other software teams Range of systems and other specialties 	<ul style="list-style-type: none"> One or more external facing Product Managers Agile Project Manager per major subsystem Agile Program Manager for whole system Product Owner per subsystem One or more dedicated Agile Coaches 	Typically, agile teams will be formed by sub-systems and possibly further into disciplines or other sub-systems. This requires a more conscious organization design and some trial and error to learn and gain correct focus on whole product prototyping, decision-making, and customer engagement.

Agile (MAHD) Project Manager

Job Summary

Do you lead teams to successful outcomes with every agile project you manage? If you possess great project management and cutting-edge agile skills, along with an insatiable drive to solve problems, you might be our new Agile Project Manager.

With your extensive project management experience, agile mindset and deep understanding of the Modified Agile for Hardware Development (MAHD) Framework you'll lead complex projects while managing risk, resource constraints and changing customer requirements.

As an agile team leader, you are highly motivated and capable of guiding teams, removing roadblocks and delivering on every iteration. You possess key skills of managing cross-discipline teams of engineers, software developers and a wide range of functional stakeholders. While managing to the big picture, you dive into details when needed but get out the way to let teams execute.

You gain respect, not from any formal authority, but by coaching, outstanding facilitation at the right times, staying on top of every project aspect, helping others succeed and using tools wisely.

Responsibilities

In this complex role, you'll lead projects from inception to successful outcomes. You'll interact closely and often with a range of functions from marketing and R&D to operations and business leaders to establish schedules, develop plans, execute flawlessly, and deliver every milestone.

Among others, your responsibilities will be to:

- Work closely with agile teams to kickoff projects using the MAHD On-ramp that combine aspects of software, electronics, mechanics, design, firmware and other functions.
- Facilitate the development of an Iteration Plan and bring your agile and project management skills to effectively track progress, update the plan at each Iteration milestone, minimize risk and drive the plan.
- Work closely with business leaders and Product Managers to translate business and customer needs into product deliverables.
- Assure that the Agile team, or multiple agile teams, are working toward whole product iterations that are executed on time with proven high-quality outcomes.
- Assure dependencies and risks between work streams are identified, coordinated, aligned and nurtured throughout the project.
- Educate team members on the proper use of the agile tools and methods and instilling an agile mindset throughout the project.
- Cooperate and communicate clearly with all stakeholders and keeping the large number of stakeholders around the company, including executives, well informed of the project status and challenges in a timely manner.
- Work closely with the Product Manager to communicate the Product Vision for the project to the various stakeholders.

Agile (MAHD) Product Manager

Job Description

Do you deliver profit and revenue that exceeds targets with every product you manage? If you possess great business acumen, leadership skills and a deep agile mindset combined with a drive to deliver outrageously successful products, you might be our new Agile Product Manager.

Not only do you possess the analytical skills to identify and assess market opportunities, you can go deep into understanding customer needs and translate complex insight into specific products and solutions that customers will love. You also have an acute ability to create and communicate your vision to both external and internal stakeholders ranging from development teams to sales to executives.

While focusing on the big picture, you work closely with Agile Project Managers, Agile Product Owners and cross-functional teams to clarify the vision into compelling product roadmaps and features that focus on meeting real customer needs. You also understand and embrace the inherent uncertainty of projects and work with Agile teams to develop Iteration Plans that answer critical questions early in development, while aligning all functions toward important prototypes and integration points.

You are also not afraid to use your skills and influence to make tough decisions that gain support and keep teams focused on critical success elements. You gain respect, not from any formal authority, but by being a champion for your products, having a deep understanding of your market and helping others succeed.

Responsibilities

With your background in both Product Management and agile development, you are going to be one of the key drivers to success of your products from inception to business outcomes, often managing the P&L to optimal results. With your strong ability to navigate difficult company cultures and external factors to deliver business objectives, you will interact closely and often with a range of functions including Agile Project Managers, Agile Product Owners and all functional leaders as well as marketing, R&D, operations and finance teams to build support, make decisions and guide execution.

Among others, your responsibilities will be to:

- Analyze competitors, market trends and technology that lead to clear positioning strategies and innovative solutions.
- Develop clear, market-driven strategic product roadmaps that focus on creating customer value.
- Create and lead a repeatable strategy for gathering, communicating and validating customer needs that results in clear, customer user stories and product attributes to lead efficient product development efforts.
- Apply agile and MAHD principles to define products and write user stories.
- Work closely with Agile Project Managers and Product Owners to identify key whole product iteration milestones, develop prototype plans, translate customer needs (user stories) into product attributes and prioritize the backlog of execution tasks with a constant emphasis on creating value.
- Develop business, product and marketing plans that include market and product forecasts, pricing strategies and go-to-market strategies and tactics.
- Lead the development of a customer engagement strategy that will be executed by yourself or the Agile Product Owner.
- Work closely with production, marketing and other functions to successfully execute your product and marketing plans.

Agile (MAHD) Product Owner

Job Summary

Do you have a passion for amazing products and working intimately with teams? If you possess great team skills, solid customer research acumen and expert MAHD knowledge, you might be our new Agile Product Owner.

If you are already familiar with agile for software or Scrum methods, great! But do not let the Product Owner role defined in the Scrum process confuse you. This Agile (MAHD) Product Owner role is unique in several ways. First, you take customer engagement very seriously! As the team's Product Owner, you will work closely with the Product Manager and other team members to plan and execute your customer feedback plan and ensure this learning drives ultimate project success. You'll also work closely with functional leaders in each discipline to develop tasks, prioritize the agile backlog and manage acceptance criteria.

You will need to stay flexible as the project evolves and different challenges arise. During some periods you will focus on getting design issues resolved using excellent customer feedback tools, while later you may have production customers that need answers from your team FAST. You are the bridge between your team and both internal and external customers which means you know a lot about various functions and the whole product development process. Between you and the Agile Project Manager, you make it all work and allow development teams the freedom to execute while you keep them focused on the most important tasks in every sprint and iteration.

You gain respect, not from any formal authority, but by coaching, clarity of thought, an ability to engage with customers (internally and externally) in meaningful ways and helping the team integrate new information while staying focused.

Responsibilities

In this critical role as a MAHD Product Owner you will interact closely with the Product Manager, Agile Project Manager and functional leaders to ensure the success of every agile project.

Among others, your responsibilities will be to:

- Work closely with agile teams, especially the Product Manager and Agile Project Manager to kickoff projects during the MAHD On-ramp activities to identify internal and external customers, develop strategies to get answers and help clarify integration points, prototype plans and other aspects of the Iteration Plan.
- Work closely with the Product Manager to ensure the Product Vision for the project is clear in every sprint.
- Participate as the customer and market evangelist in each sprint planning session to clarify the priorities, ensure user stories are getting satisfied, guiding acceptance criteria and keeping the team focused on valuable deliveries each sprint.
- Work closely with others to develop a customer engagement strategy that you, the Product Owner, will execute. This includes identifying and managing customer relationships, planning research activities, analyzing results and reporting back to the team for integration into future plans.
- Work closely with internal customers of your agile team such as other groups, production facilities, purchasing, finance, etc. to understand their needs, prioritize tasks and help the Agile Project Manager manage risk and dependencies.

Agile (MAHD) Coach

Job Description

Do you love guiding teams and associates to success? If you possess strong coaching skills, appreciate a good process, have a deep agile mindset along with a drive to see your team members thrive, you might be our new Agile Coach. While this role is similar to “Scrum Master,” you’ll embrace its unique MAHD characteristics.

With your valuable team experience, you are gifted in motivating individuals, solving problems and sharing your mastery of agile and the Modified Agile for Hardware Development (MAHD) Framework with others. Not only do you possess strong people skills with an ego that lets other shine, you love working in the background to make your team productive and focused.

While you help others, you’re not a pushover. You expect high quality and commitment from team members and work closely with Agile Project Managers, Product Owners and cross-functional teams to get high output from individuals while consistently improving how you apply agile and other methods toward great outcomes and better efficiencies.

You are not afraid to use your skills and influence to improve how the team operates toward achieving their objectives.

Responsibilities

In this team-oriented agile coaching role, you’ll interact closely with the Agile Project Manager, Product Owner, functional managers and all agile team members to ensure the day-to-day MAHD process is working smoothly while ensuring each team member has the skills to succeed. In essence, you’re the keeper, evangelist and implementer of the agile/MAHD process.

Among your areas of responsibility will be:

- Leading the team as an expert on agile processes along with MAHD methods and tools.
- Preparing for and then facilitating successful agile sprint and iteration planning sessions, standup meetings and retrospectives.
- Sharing the right methods and tools at the right time to guide success at each step of the agile process.
- Owning the process to validate acceptance criteria at the end of every agile iteration, bringing a knowledge of the range of agile approaches such as Scrum, XP, Kanban, SAFe, etc. and how to bring the best of these into the company’s internal practices.
- Work closely with the Agile Project Manager to identify and implement the best tools to manage the agile process.
- Helping teams “self-organize,” establish clear roles and work together effectively.
- Coaching up and down the org chart to ensure everyone from team members to executives can understand and apply agile methods.
- Staying aware of current best practices and bringing fresh thinking and perspectives to continuously improve the team’s productivity and focus.
- Working closely with Agile Project Managers, Product Owners and Product Managers and functional leaders to anticipate challenges and overcome obstacles.