

NAMTSO

# NAMTSO TECHNOLOGY CO., LTD.

Your Partner in Custom Electronics Solutions, from Definition to Production.

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# Application Scenarios

Areas in which Namtso Technology is being applied.



Interactive Displays



Intelligent Retail Systems



Automated Industry

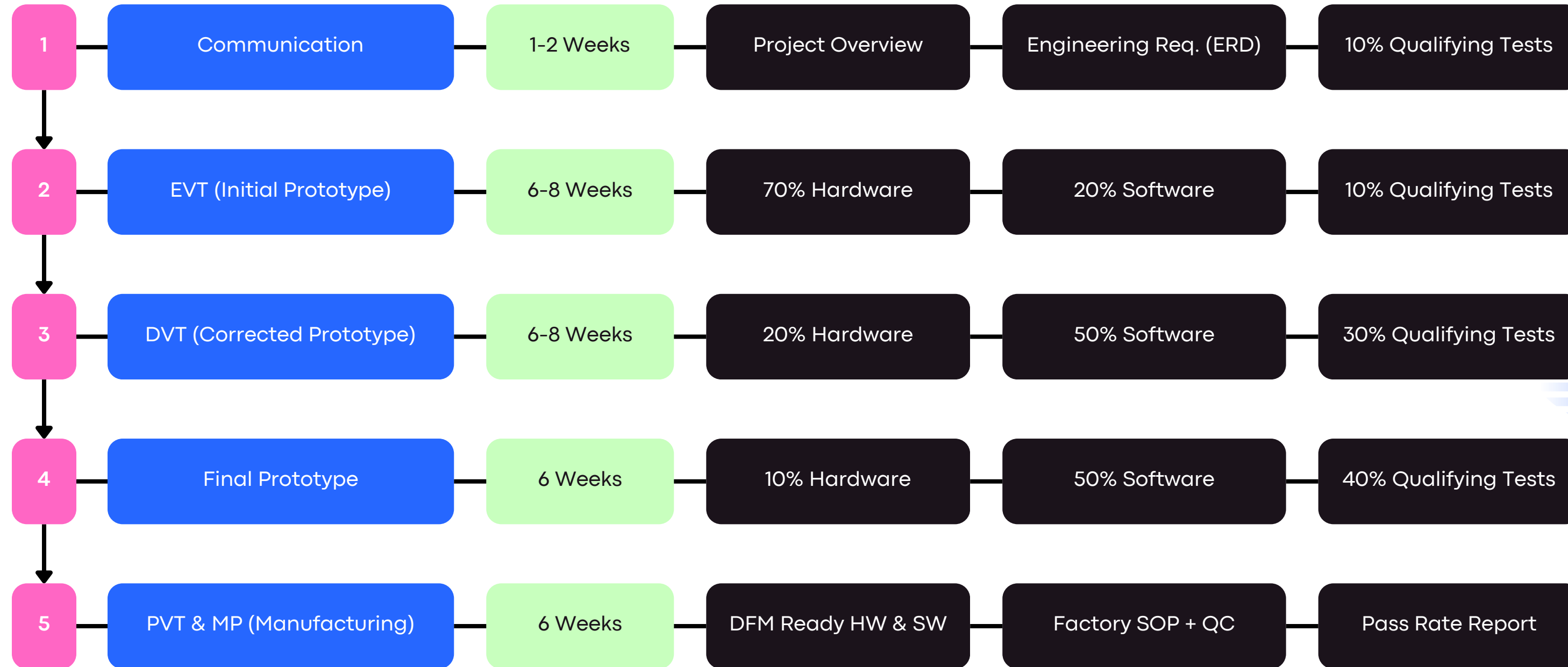


Edge Computing

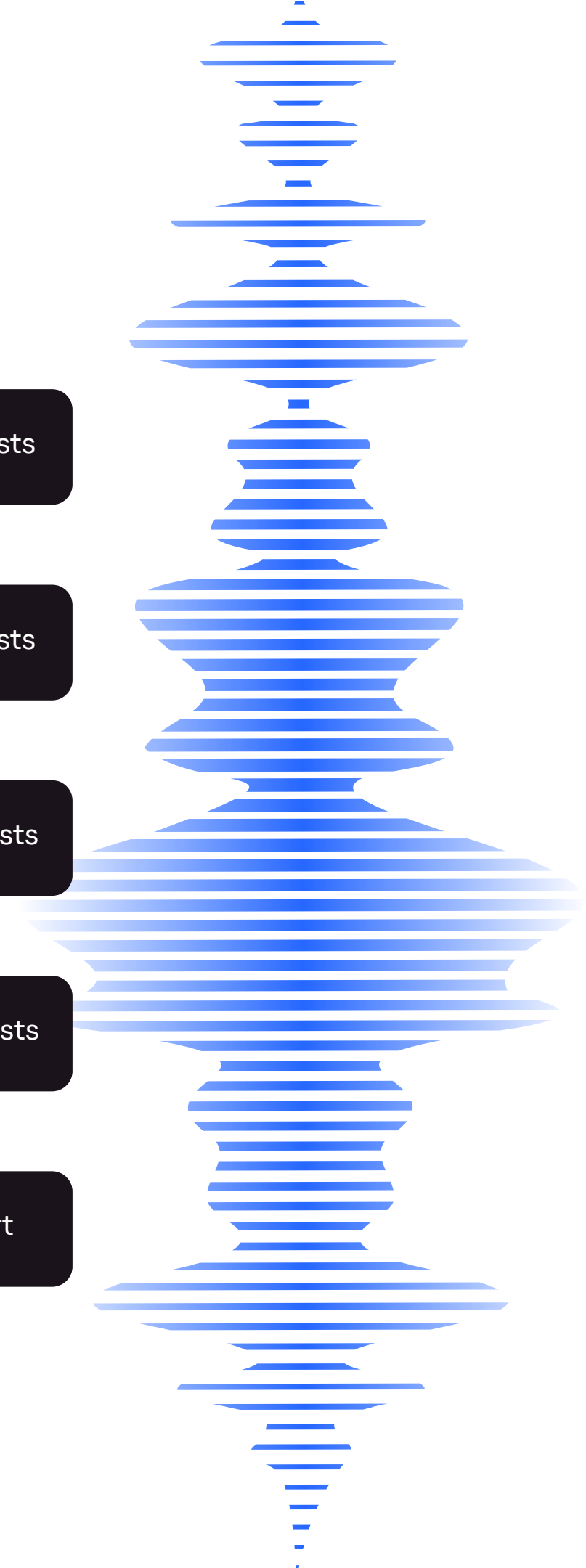


Machine Vision

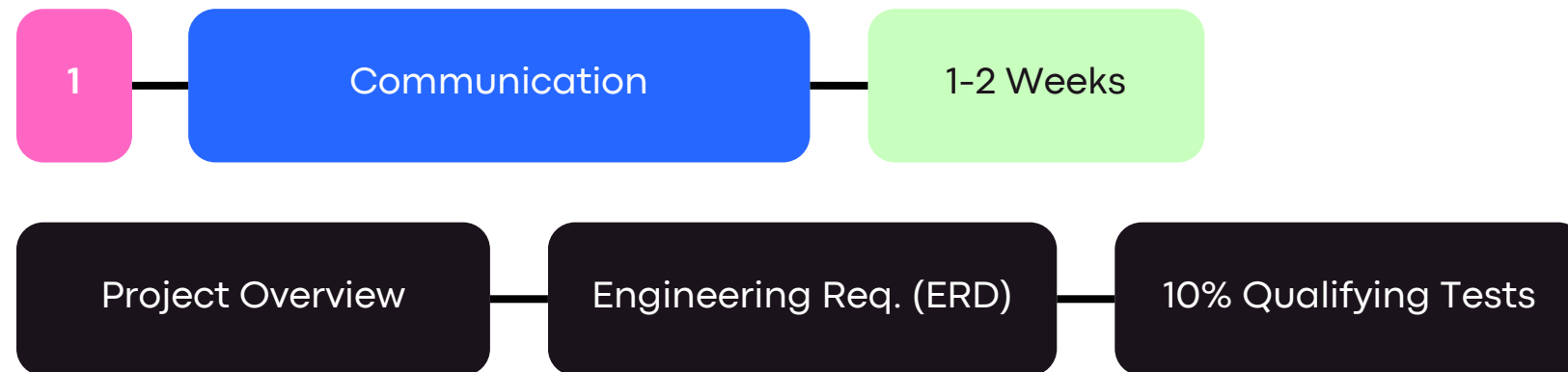
# Leadtime & Scalability



\* Example of a typical project lead time, varies by project. Simpler projects can be completed much faster, complex ones may take more time.



# Communication Phase



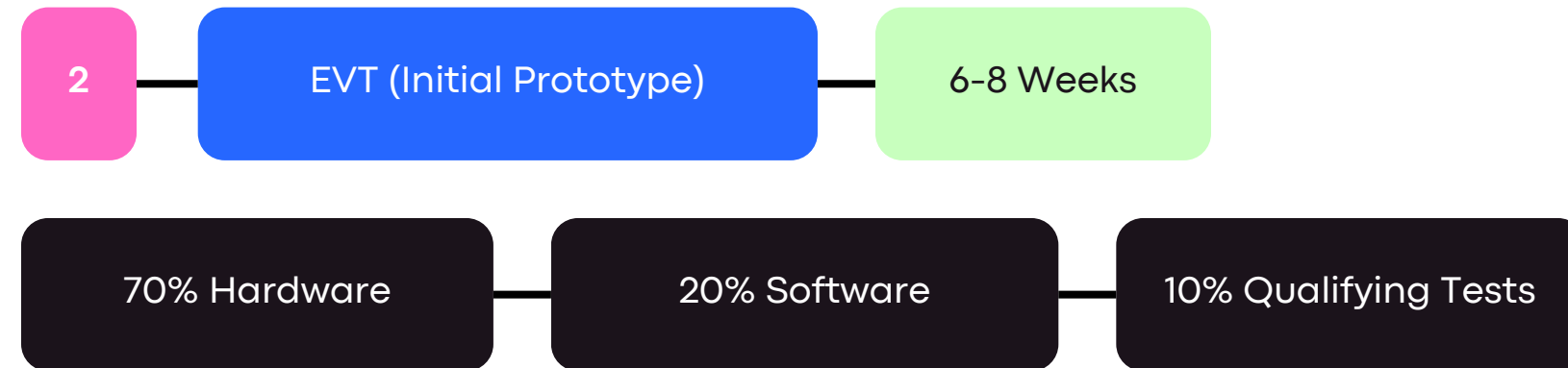
The communication stage is the first milestone in your ODM journey. Before meeting with Namtso, be sure to gather up all your project stakeholders (marketing, engineering, software, user-experience, design, sales, finance, logistics, customer service, etc) to write a Product Requirements Document (PRD).

Once your PRD is ready, you will be able to work with our professional engineers at namtso to create an Engineering Requirements Document (ERD). The ERD will cover the technical aspects of your product, e.g. components, operating environment, obsolescence, performance, and lifespan. Bill-of-Materials (BOM) cost and the feasibility will also be estimated during the ERD planning stage.

Once your team agrees to the ERD, we will then map out the overall timeline and project deliverables. You will need to make 50% payment of the NRE (non-recurring engineering) cost before you can move on to stages 2 to 4.



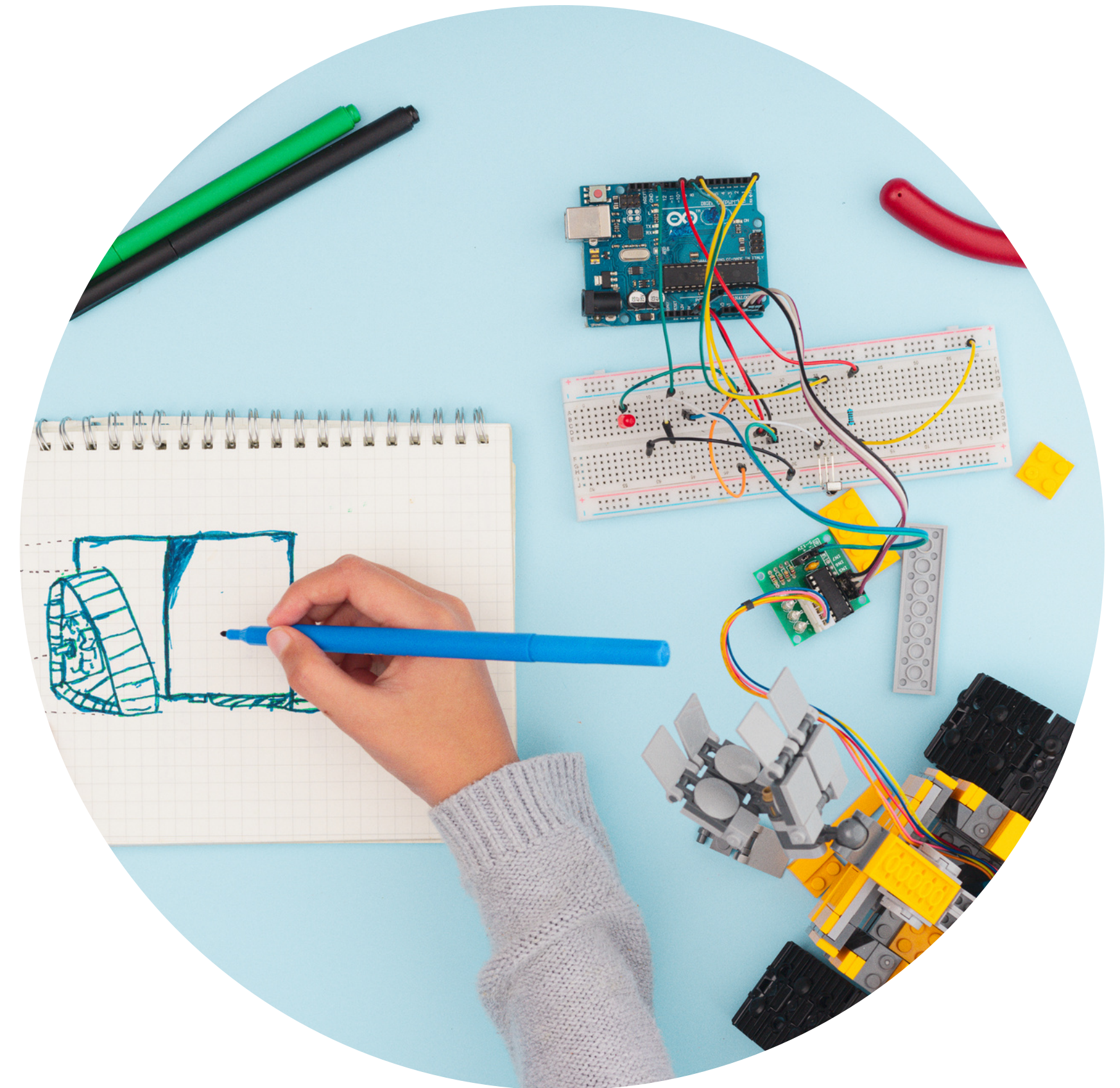
# Initial Prototype



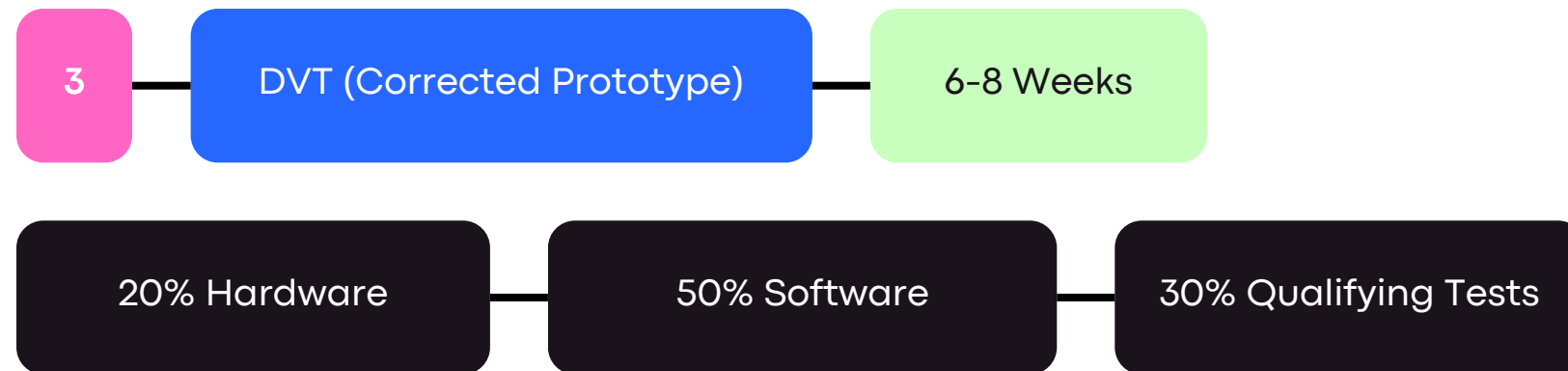
During the initial prototyping stage, our engineers will work in accordance with your ERD to design the heart and soul of your product; the Printed Circuit Board (PCB). 3 initial prototypes (Prototype I) will be manufactured and sent to you.

If your product involves industrial design (ID) of external components (e.g. cases, covers), this may be done before, simultaneously, or after the PCB design, dependent on your requirements. Once both the PCB and ID (Prototype I) are ready, basic software will be written by our software team, so that your team can study the prototype holistically.

During this stage, it is important for all of your stakeholders to give their feedback about Prototype I. Your feedback will be used to update the ERD before we move onto stage 3. Qualifying tests will focus on the main functionality of your product in accordance with the PRD and ERD.



# Corrected Prototype



Based on feedback given in stage 2, a new PCB and ID (Prototype II) will be designed for software development. It is important that we finalise most of the hardware architecture during stage 2, before moving on to stage 3.

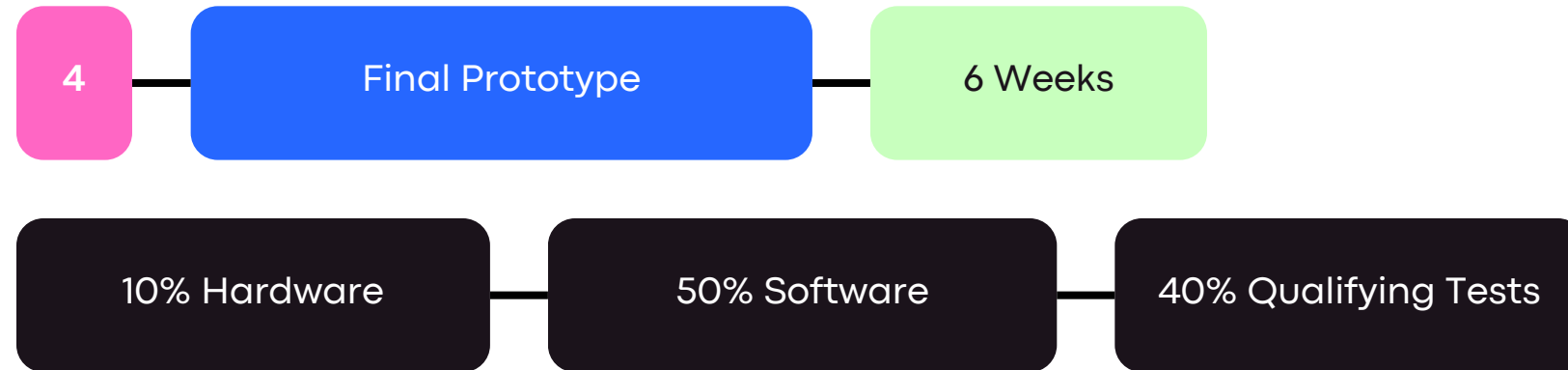
The Prototype II hardware will be subjected to qualifying tests, such as accelerated aging, performance, vibration, temperature, drop, humidity, etc, that would have been indicated in the ERD.

With the hardware architecture 80% completed, our software team can then commence writing the bulk of the firmware and software for your product. If your team is writing the software, we would then handover Prototype II to your team.

Depending on the outcome of the qualifying tests or software development, we could either move onto stage 4, or revise Prototype II to more closely meet the the PRD and ERD.



# Final Prototype



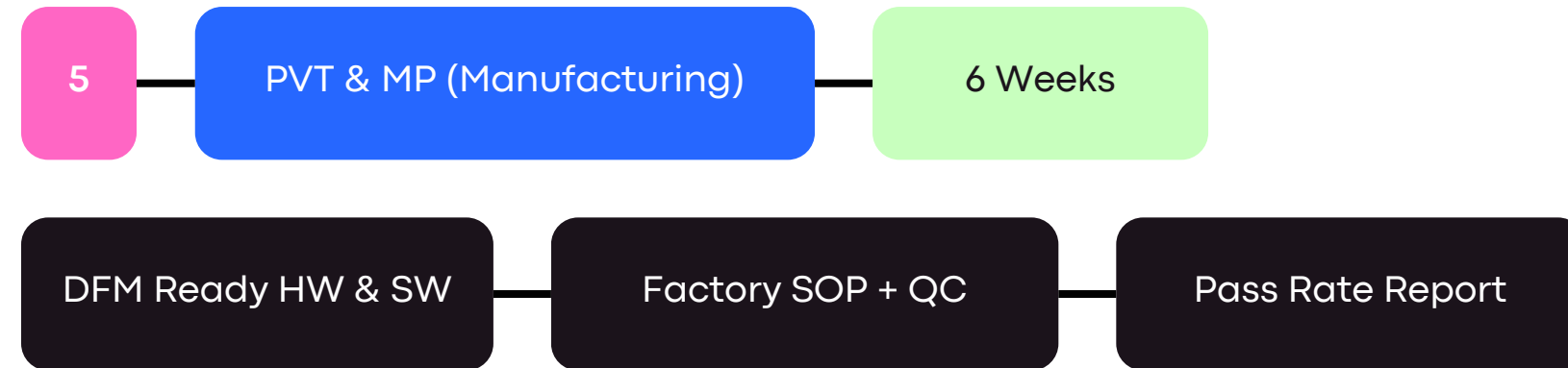
The conclusion of your NRE project is with a final prototype (Prototype III) that combines both production-ready hardware and software. During this stage, hardware modifications should be minimal and software will be continuously improved and refined.

As specified earlier within your ERD, the final prototype will also be sent to recognised external testing laboratories to undergo mandatory certifications such as CE, ROHS, and FCC.

Once your team is pleased with the result, you will receive the deliverables agreed upon earlier in the ERD. At the conclusion of this stage, you can decide to either receive your intellectual property, or place an order with us and move on to stage 5, manufacturing.



# Manufacturing Phase



Once hardware and software are in-sync and ready for release, we can begin stage 5. A minimum 100 unit trial run will be conducted to develop the factory's standard-operating-procedure (SOP) and design appropriate quality control (QC) methods.

After a successful trial, you may then decide to commit to a full run; minimum order quantity (MOQ) of 500-1000 units. You may assign your own in-house or 3rd-party QC personnel to our assembly line at this time.

It will be important for your QC personnel to pay attention to subjective variables such as serialisation and bar coding, silkscreen colour printing (lighting conditions in the factory will differ from your customer), English grammar and legibility, etc.







# Customisation Capabilities

NAMTSO's extensive customization capabilities, showcase our ability to tailor solutions ranging from PCBA to complete machine customization, all while maintaining a client-centric approach and ensuring scalability and flexibility.

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## Customized PCBA Services:

- Offerings for bespoke PCBA development tailored to client specifications.
- Adaptability to various design complexities and functionalities.

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## PCBA + Software Customization:

- Integration of custom software solutions with PCBA design.
- Flexibility in software development to meet specific client requirements.

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## Full Machine Customization:

- Customize the entire machine, including casing and other components.
- End-to-end customization from internal hardware to external design aesthetics.

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## One-Stop Customization Service:

- Comprehensive service covering every aspect of customization.
- Streamlined process ensuring efficient and cohesive product development.

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## Scalability in Customization:

- Able to scale customization efforts for both small and large production volumes.
- Balancing individual customization needs with efficient mass production.

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## Flexible Adaptation to Changing Needs:

- Ability to incorporate small-scale changes post-requirements confirmation.
- Process for re-evaluation and adaptation in case of large-scale changes.



# Certification Compliance

A structured approach to ensuring products meet necessary certification standards, crucial for market entry and customer trust.

## 1 - Initial Compliance Assessment:

- Review of product specifications & requirements in accordance with certification standards (e.g. CCC/CE/UKCA/FCC/RoHS/TELEC/KC).
  - Identification of necessary certifications based on industry, product type, and target markets.
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## 2 - Documentation and Preparation:

- Gathering all design files, material lists, and test reports.
  - Ensuring all aspects of the product comply with specified standards.
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## 3 - Testing and Validation:

- Partnering with certified laboratories for independent validation.
  - Addressing any compliance issues identified during testing.
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## 4 - Certification Application:

- Submitting the complete application to relevant certification bodies.
  - Providing additional information or clarification as required.
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## 5 - Client Communication and Support:

- Maintain a long-term client and product support relationship.
- Offer support when re-certification due to market changes occurs.



# Cost Structure

NAMTSO's cost structure and pricing is clear and transparent, ensuring that you can make informed financial decisions regarding your projects.

## Development Cost Structure (NRE)

- Initial Consultation
- Design & Development
  - Software + Hardware
  - ID + Mold Design

## Manufacturing Pricing Models

- Per Order Pricing
- Bulk Order Discounts

## Minimum Order Quantities

- Standard MOQ
- Flexible MOQ

## Additional Costs and Fees

- Certification Compliance
- Change Requests
- Expedited Services

## Transparent Quotation Process

- Itemised Client Quotations
- No Hidden Costs, Full Transparency

## Cost-Benefit Analysis

- Value Proposition
- Return On Investment
- Comparative Cost Analysis



# Post Production Support

NAMTSO is committed to providing extensive post-production support, emphasizing our dedication to client satisfaction even after the product has been delivered and implemented.

## Warranty and After-Sales Service

- 13-month after-sales service for bulk orders.
- Beyond the warranty period, services are provided at a fee based on the situation.

## Repair and Replacement Standards

- Specific policies for customer vs manufacturer defects.
- Unique code identification (e.g., serial number) required for post-sales service.

## Handling Out-of-Warranty Situations

- Analysis of after-sales issues for industrial SBCs.
- Specific policies for critical vs non-critical materials.
- Potential for charging a repair fee when the warranty period is exceeded.

## Long-Term Software Support

- Duration of support extends until chip discontinuation.
- Charges apply for increased functionality or system version upgrades (e.g., Android 11 to Android 13).

## Customization and Software Updates

- Customized PCBA and software updates available.
- Flexibility in adapting software to evolving client needs.

## Comprehensive Service Approach

- One-stop service system, adjustable to meet specific customer requirements.
- Dedicated support for both hardware and software aspects.



# Supply Chain Reliability

NAMTSO's strategic approach to maintaining a reliable and efficient supply chain, highlighting our commitment to quality assurance, responsive planning, and transparent communication with clients.

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## Long-Term Supplier Relationships:

- Emphasis on maintaining stable, long-term channels with suppliers.
- Continuous efforts to strengthen and diversify supplier networks.

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## Alternative Material Systems:

- Implementation of a comprehensive system for alternative materials.
- Proactive reminders to clients about SoC discontinuations 6 months in advance.

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## Quality Assurance in Supply Chain:

- Commitment to reliable production and product quality.
- Rigorous quality checks and balances throughout the supply chain.

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## Chip BOM Considerations:

- Careful selection of chip BOM to ensure supply, lifecycle, and delivery reliability.
- Planning for contingencies in case of material discontinuation.

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## Non-Critical Material Alternatives:

- Strategies for managing discontinued non-critical materials.
- Ensuring minimal impact on production and product performance.

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## Supply Chain Responsiveness:

- Capacity to respond swiftly to market changes and client demands.
- Ensuring minimal lead times and disruption in product availability.



# Software Updates

NAMTSO provides long-term, comprehensive software support and updates for our ODM customers, we are committed to keeping your products current and secure.

## Duration of Software Support

- Long-term software support until SoC discontinuation.
- Consistent software assistance over product lifecycle.

## Update and Upgrade Policies

- Regular updates to enhance functionality and security.
- System version upgrades (e.g., Android 11 to Android 13).

## Billing Criteria for Software Services

- Increased functionality with high resource investment.
- During major system version upgrades.

## Custom Software Development

- Tailored software for bespoke PCBA design.
- Basic functionality to advanced features can be met.

## Client Collaboration in Development

- Engaging clients in dev-process for bespoke solutions.
- Iterative approach incorporating client feedback.

## Responsive Support Team

- Dedicated team for prompt response to client issues.
- Support for troubleshooting and optimizations.

## Maintenance and Security

- Regular updates to ensure software security.
- Measures to safeguard against vulnerabilities.

# IP RIGHTS & CONFIDENTIALITY

## YOU




- **Provision of IP:** Provide NAMTSO with any necessary IP or proprietary information required for the project.
- **Disclosure of Pre-existing IP:** Disclose any pre-existing IP that the client brings to the project to avoid conflicts.
- **IP Licensing:** Managing any necessary licensing agreements if third-party IP is to be used in the project.
- **IP Filings:** File patents or other protections for client-owned new developments.
- **Compliance with Agreements:** Adhering to terms regarding the use of NAMTSO's IP in the client's products or services.
- **Communication:** Keep NAMTSO informed of any changes or updates regarding their own IP that may affect the project.

## NAMTSO



- **Protection of Client IP:** Ensuring any client-provided IP is protected and not infringed upon during the project.
- **Confidentiality:** Maintain the confidentiality of proprietary information or technology provided by the client.
- **IP in Joint Developments:** Clearly defining and respecting ownership and use rights in cases of co-developed IP.
- **Compliance with IP Agreements:** Adhering to any specific IP agreements or contracts made with the client.
- **Disclosure:** Informing the client of any NAMTSO IP that may be used or incorporated into the project.
- **Assistance with IP Filings:** Provide support for patent filings or other IP protections for newly developed tech.



NAMTSO Technology Co., Ltd. is deeply committed to protecting and respecting the intellectual property (IP) rights of our clients. Our policy ensures that all innovations and designs developed during a project are clearly defined in terms of ownership, with clients retaining control over their IP.

# TERMS OF COOPERATION AND OPT-OUT POLICY

## YOU



- **Project Initiation:** Engage in agreements and fulfill initial financial commitments for project commencement.
- **Change Requests:** Communicate and manage small-scale changes; engage in re-evaluation for significant modifications.
- **After-Sales Service Period:** Understand the 13-month after-sales service period; expect charges for services beyond this timeframe.
- **Dispute Participation:** Engage in fair and effective dispute resolution mechanisms as needed.
- **Opt-Out Compliance:** Adhere to the opt-out conditions and timelines as stipulated in the contract.

## NAMTSO



- **Transparent Cooperation:** Provide a clear and mutually beneficial cooperation framework in client contracts.
- **Project Management:** Oversee project initiation, development, and completion, ensuring adherence to agreed terms.
- **After-Sales Support:** Offer 13 months of after-sales service post-order, with additional support available at a charge beyond this period.
- **Change Management:** Handle client-requested changes, both minor and major, with a clear process for evaluation and implementation.
- **Project Closure and IP Handling:** Ensure smooth project closure and fair handling of intellectual property as per agreement.
- **Dispute Resolution:** Provide mechanisms for resolving any disputes or disagreements amicably.
- **Opt-Out Facilitation:** Manage the opt-out process, including notice periods and termination procedures.



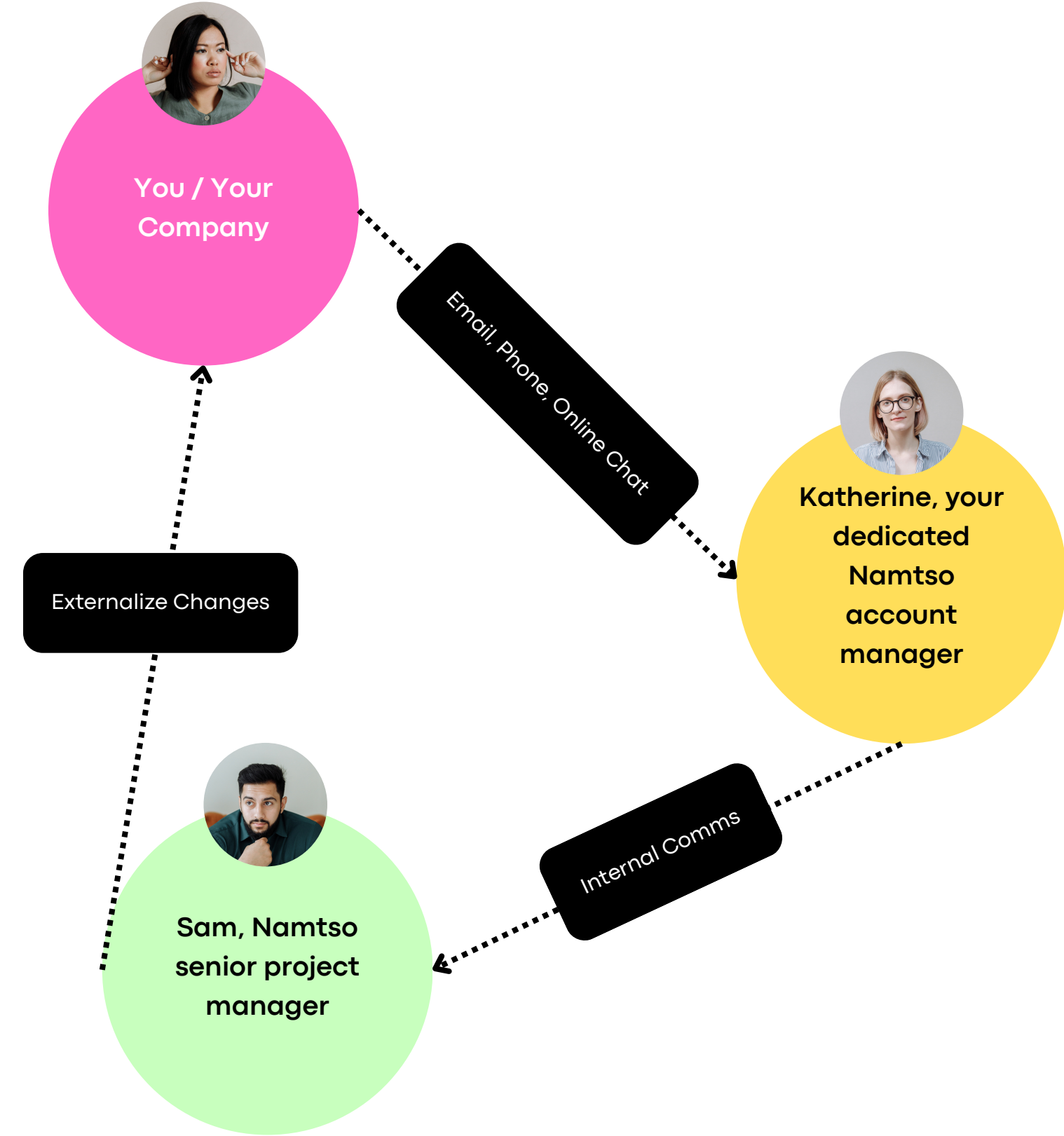


# Client Support & Communication

NAMTSO Technology adopts a client-centric approach to customer support, emphasizing responsive, accessible, and proactive services. We will open and maintain various communication channels with you, including email, phone, and online chat, ensuring availability and timely responses.

Each client is assigned a dedicated account manager, who plays a pivotal role in facilitating seamless communication and regular project updates. NAMTSO is committed to effectively addressing and resolving any client issues or inquiries. We value your feedback, incorporating it into continuous service improvement.

Additionally, you will have after-sales support, encompassing warranty, maintenance, and technical assistance, demonstrating our commitment to your long-term satisfaction and success.



# For inquiries, contact us.

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