

Get in Touch with Microchip
Your One-Stop-Shop for Touch Solutions



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A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

如何保持互動，直到生意來臨



SMART | CONNECTED | SECURE

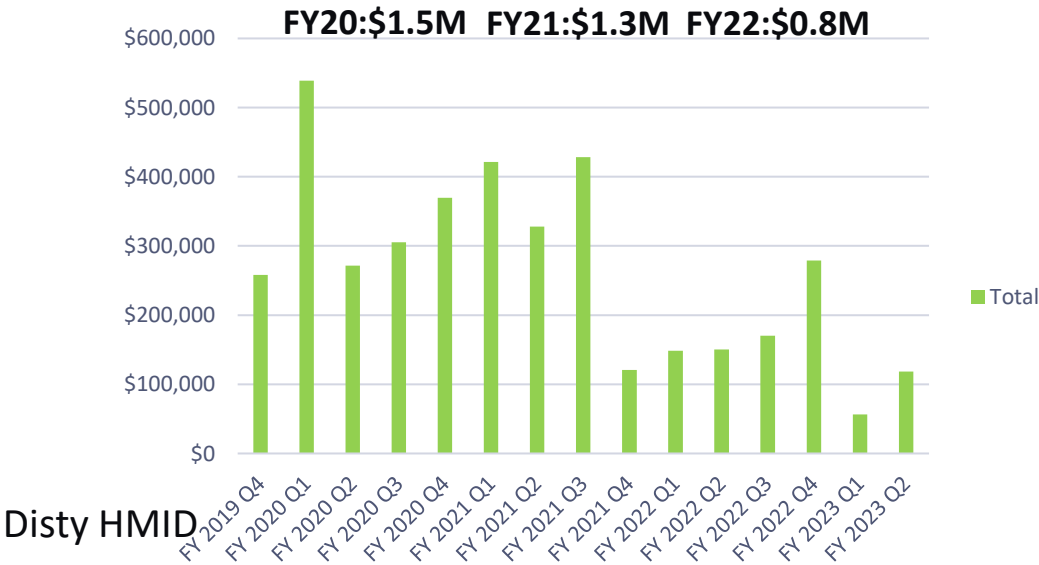
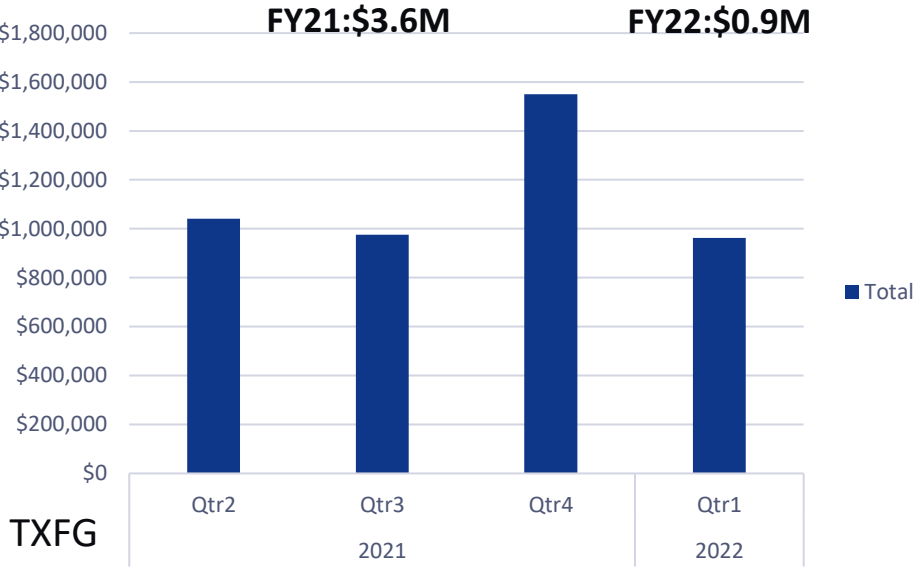
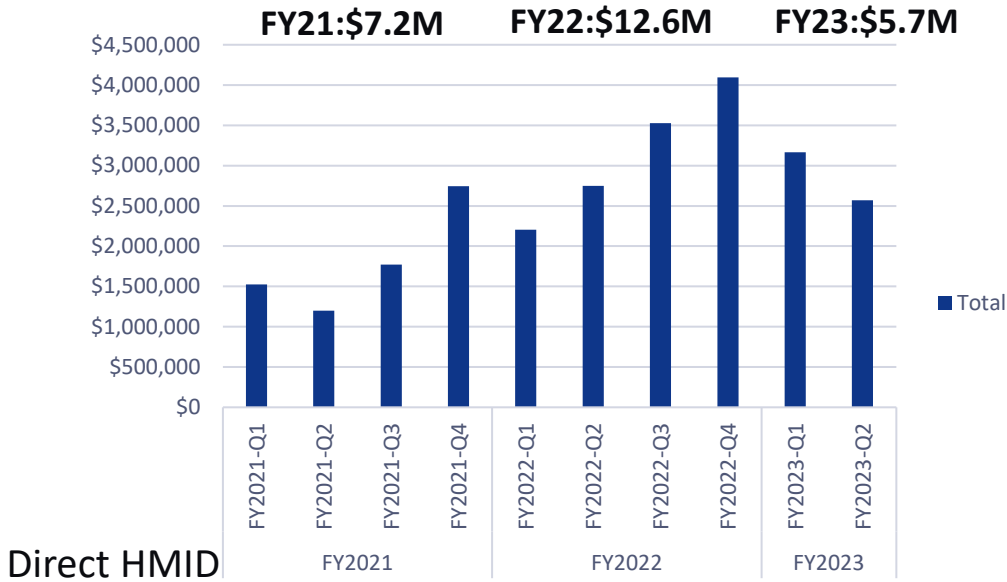
Touch KGI Team
September 2022

Microchip Proprietary and Confidential

Distributor Version



FY21 + FY22 = \$26.4M => 10,000,000 pcs/year



視而不見
or
信手拈來



Let's Keep In Touch with Touch !

- 1. 1D/2D/3D Touch Solution Overview**
- 2. Performance Advantages**
- 3. New Focus Products and Solutions**
- 4. HMID/TXFG Support Strategy & Resources**
- 5. maXTouch Engagement Guideline**
- 6. Summary**
- 7. Call To Action**

Introduction

1D/2D/3D Touch Solution Overview

Microchip Touch – Leading Human Interface Solutions



- 20+ years of experience in touch market
- Patents in touch technologies
- Good reputation in touch market
 - Many worldwide famous brand names have adopted Microchip's touch & gesture solution
- **Be confident to dialog Touch solutions with client.**

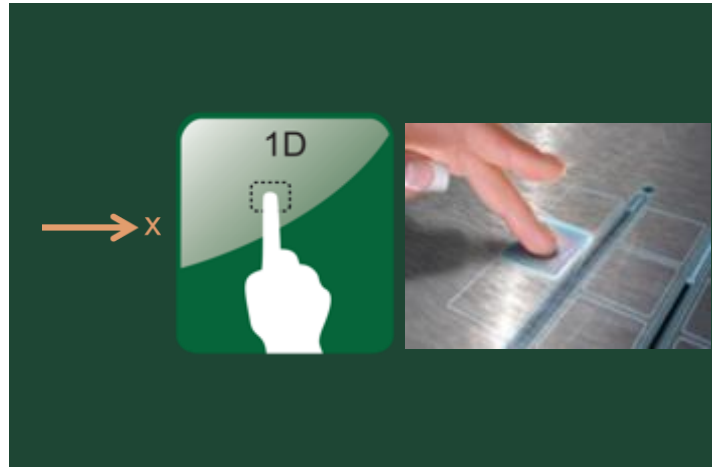
Category to start with

- **TXFG** stands for “**Touch **Crossover (**Xover) **Function **Group**”
 - Strong touch libraries for Buttons/Sliders and Touchpad/screen on MCU/MPU
 - turnkey products from CAP1xxx, MTCH1xx, MTCH61xx and AT42QTxxx
 - Customization specification and performance********
- **HMID** stands for “**Human **Machine **Interface **Division**”
 - dedicated touch controllers : maXTouch (ATMXTxxxx) and GestIC (MGC3xxx)
 - Display always included.
 - Adaptive performance
 - Solid and promising engineer support******

觸控方案專門店

Turnkey Devices

Touch Microcontroller + Library



CAP11xx/CAP12xx

3 – 14 keys, sliders & proximity

- LED, I²C interface

AT42QTxxxx

1 – 64 keys, sliders & proximity

- I²C / SPI / GPIO
- EN 60730 Class B Safety

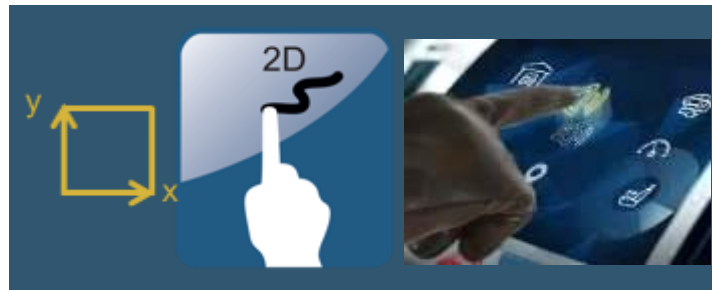
MTCH1xx

1-8 Keys & proximity

- Direct mechanical button replacement

PIC / AVR / SAM / PIC32

- MCUs with hardware touch controller
- Touch library for keys, sliders and proximity

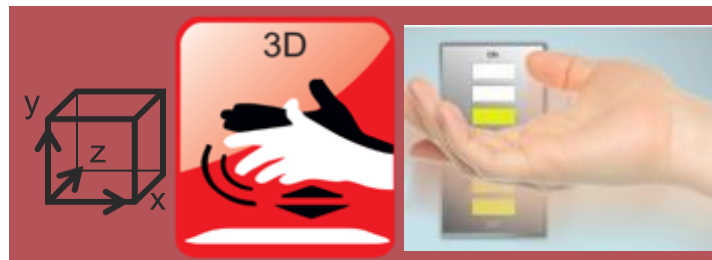


maXTouch

- Multi-touch touchscreen
- Trackpad controller

PIC / AVR / SAM / PIC32

- MCUs with hardware touch controller
- Touch library for dual touch 2D touchscreen and trackpads



GestIC

- 3D gesturing controller

Market & Applications – 機會在哪裡?

Industrial



Data Center & Computing



Automotive



Communications



Aerospace & Defense



Consumer



1 D / 2 D / 3 D TOUCH OPPORTUNITIES

Microchip觸控產品的競爭優勢

Overall Strengths – 五行相生



- Offers automotive-grade products for touch sensing
- Microchip touch solutions support automotive functional safety requirements



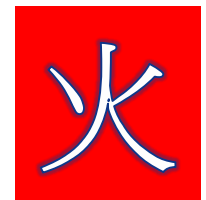
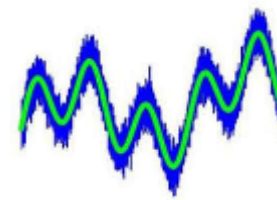
- Dedicated HW on PIC, AVR and SAM devices enable the lowest-power touch with capacitive sensing below 5µA



- Avoids false & missed touch events with wet surfaces without the need to clean their hands or wipe them dry every time they use their devices



- Conducted and radiated immunity
- State-of-the-art SW & HW to avoid/filter noise
- High Signal-to-Noise Ratio (SNR)
- IEC61000, EFT and BCI tested

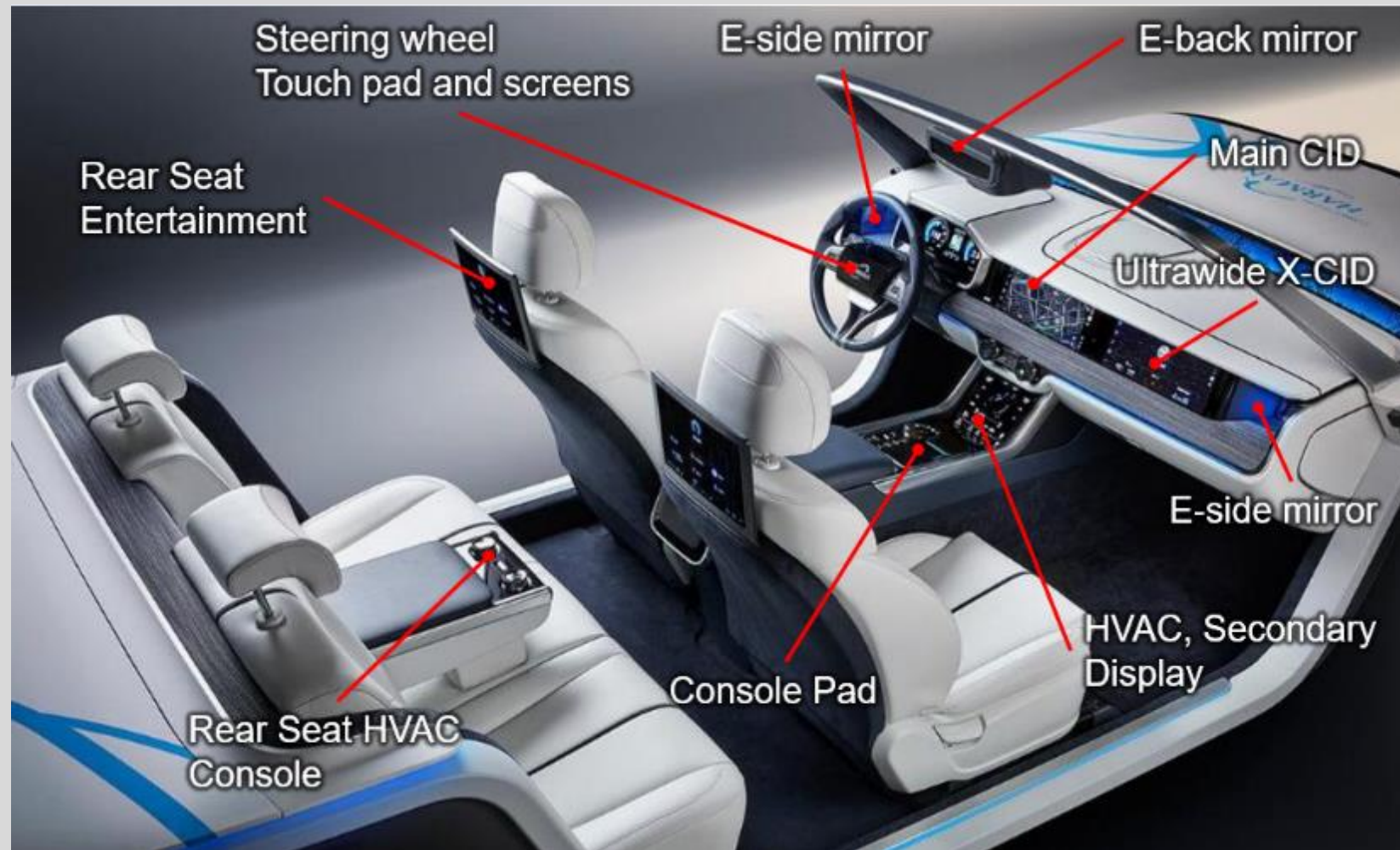


- Safety-Certified Touch Sensing
- Offers products (turnkey and libraries) certified according to IEC/UL 60730 Safety Class-B standards

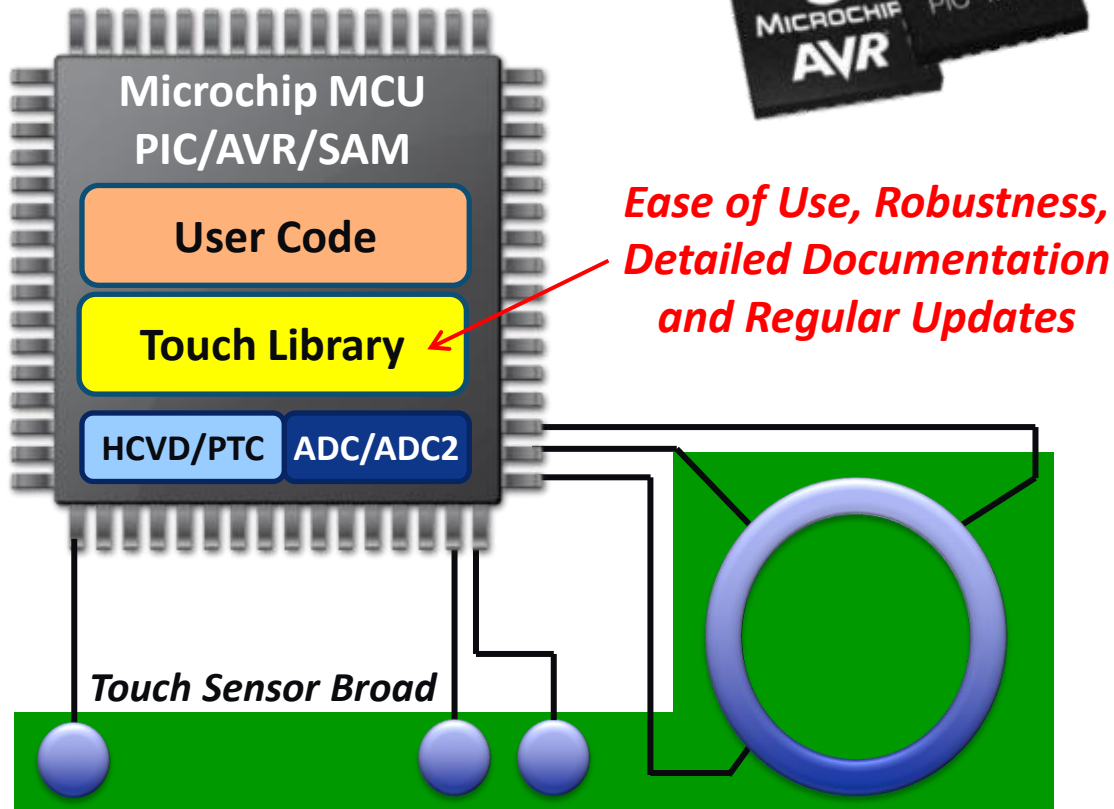


More Touch Displays & Touch Surfaces in Cars

Automotive Grade & Functional Safety Support



MCU Platform Touch Solution

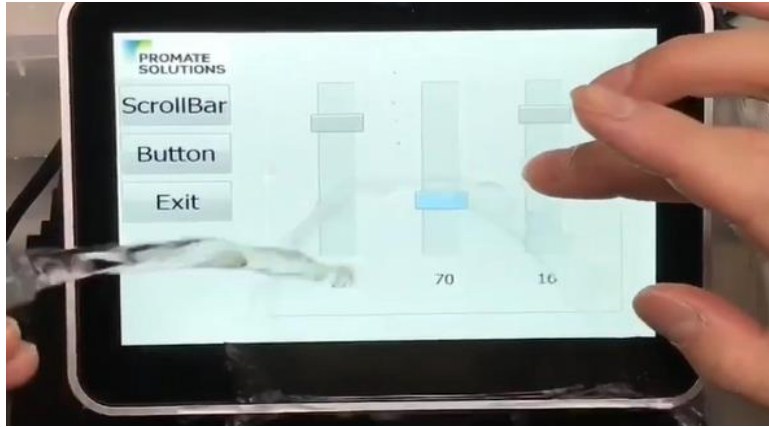


*Ease of Use, Robustness,
Detailed Documentation
and Regular Updates*

- Many MCUs (PIC, AVR & SAM) have Touch Function
- **Low-power** for battery product.
- **Touch Library** released for million users.
- **Low System Cost** from circuit Integration.
- **Water-tolerant** touch BSW and touch pad solution
- Either Q100 Qualified or Q100 Capable for automotive application
- IEC/UL 60730 Class-B certified safety touch solutions

Heavy Water Flow Immunity

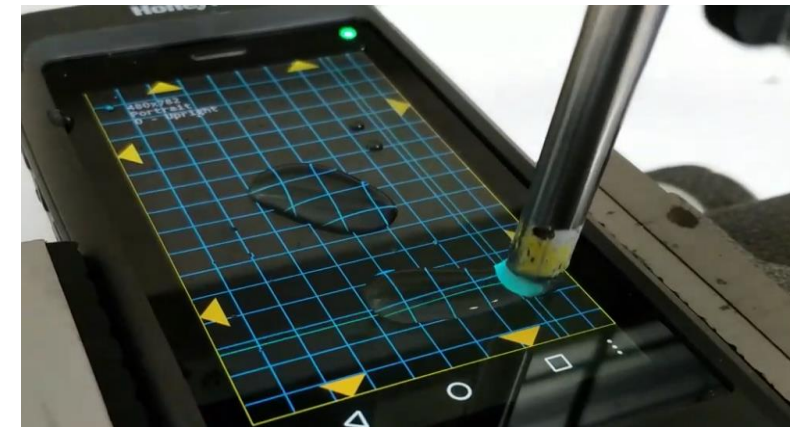
touch operation under hose, sink, or shower



Based on mXT2952T2
<https://tinyurl.com/y4dphsga>



Based on mXT2952T2
https://www.promate.com/products/hmi_series/



Based on 640U
www.youtube.com/watch?v=WvGPnuUoTtE



vs. A-pad, Based on mXT640T
<https://www.youtube.com/watch?v=thAko3KZ4dI>



Based on PICLF1559

Unparalleled Noise Immunity



Noisy AC power



Inductive cooktop burners



Noisy motors (dishwasher & laundry)




Noisy low-end displays (passive STN LCDs)

- **Overcome PCAP's largest weakness** by avoiding false or missing touches from **conducted and radiated noise sources**
- **Sophisticated hardware and firmware algorithms** to avoid most noise sources and filter unavoidable noise
- Microchip **patented Differential Touch Sensing** (Differential Mutual and Differential Self) – for maXTouch TD/UD series

World's first UL/IEC 60730 Class B Certified Touch Controller!

Advantages *Powered by maXTouch HA-family*

- **Report Touch Failures to User – Real-time Diagnostics**
 - Detects touch sensor breaks (open and shorts)
 - Display: "Touchscreen broken - contact service center"
- **Prevent Fires by Auto Stopping Burners** 
- **Enables SAFE & RELIABLE two-touch ON and one-touch OFF operation for self-cleaning mode**
- **Elimination of external buttons (touch or mechanical): removes cost and UI complexity with one touch enabled display.**
 - A separate Emergency Stop/Cancel button is no longer needed on cooking and laundry appliances!
 - Intuitive and cost effective common global control panel decoration
 - Display content can now address all languages for common global models

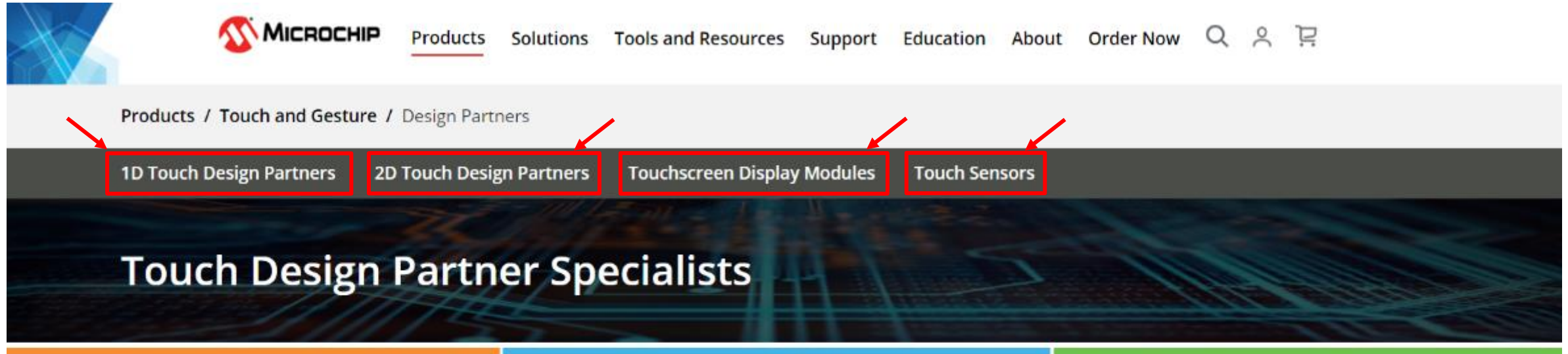


Support Strategy and Resources

HMID/TXFG

Touch Design Partner Specialists

www.microchip.com/touchpartners



Get Expert Help With Your Touch Design

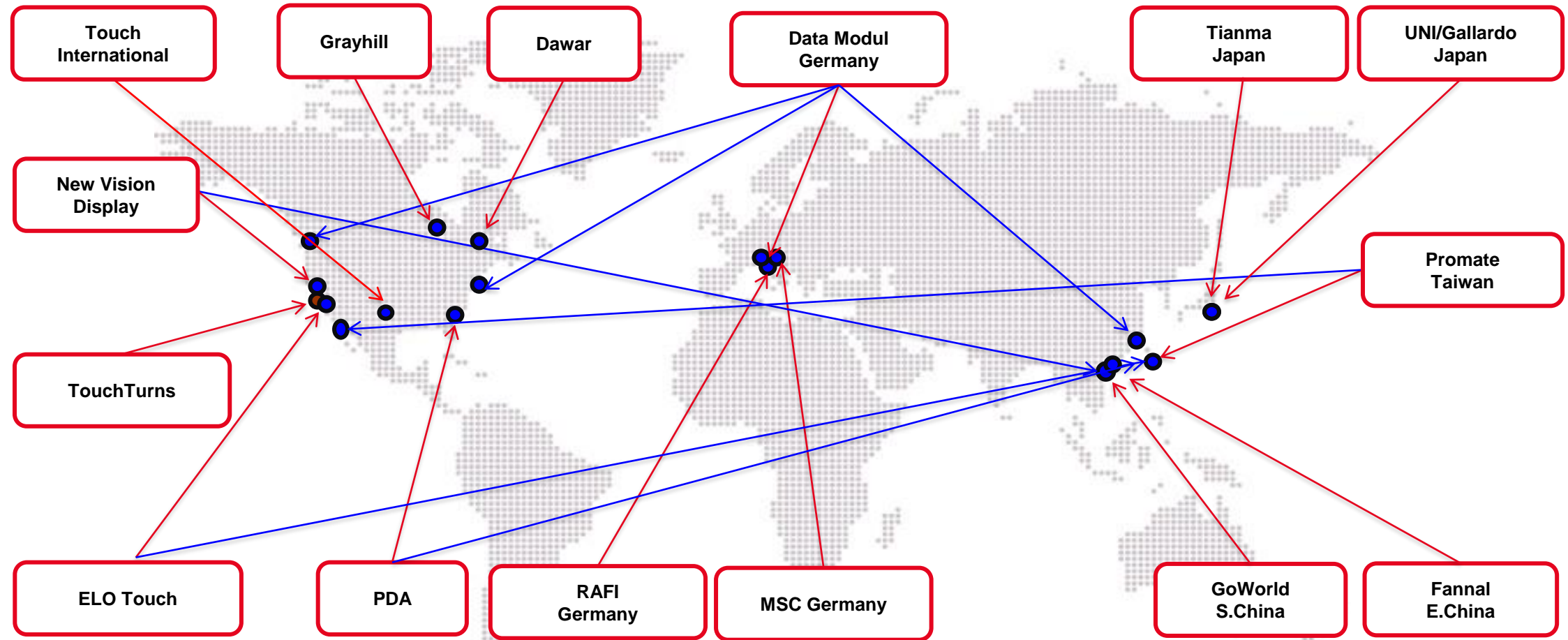
The following companies have proven touch and Human-Machine Interface (HMI) design expertise as verified by Microchip. Please contact any of these companies for design services and support for your touch project needs.



Find a Touch Design Partner by Specialty:

maXTouch Qualified Partners *(HQ + Additional Engineering Sites)*

<https://www.microchip.com/en-us/products/touch-and-gesture/design-partners#2D%20Touch%20Design%20Partners>

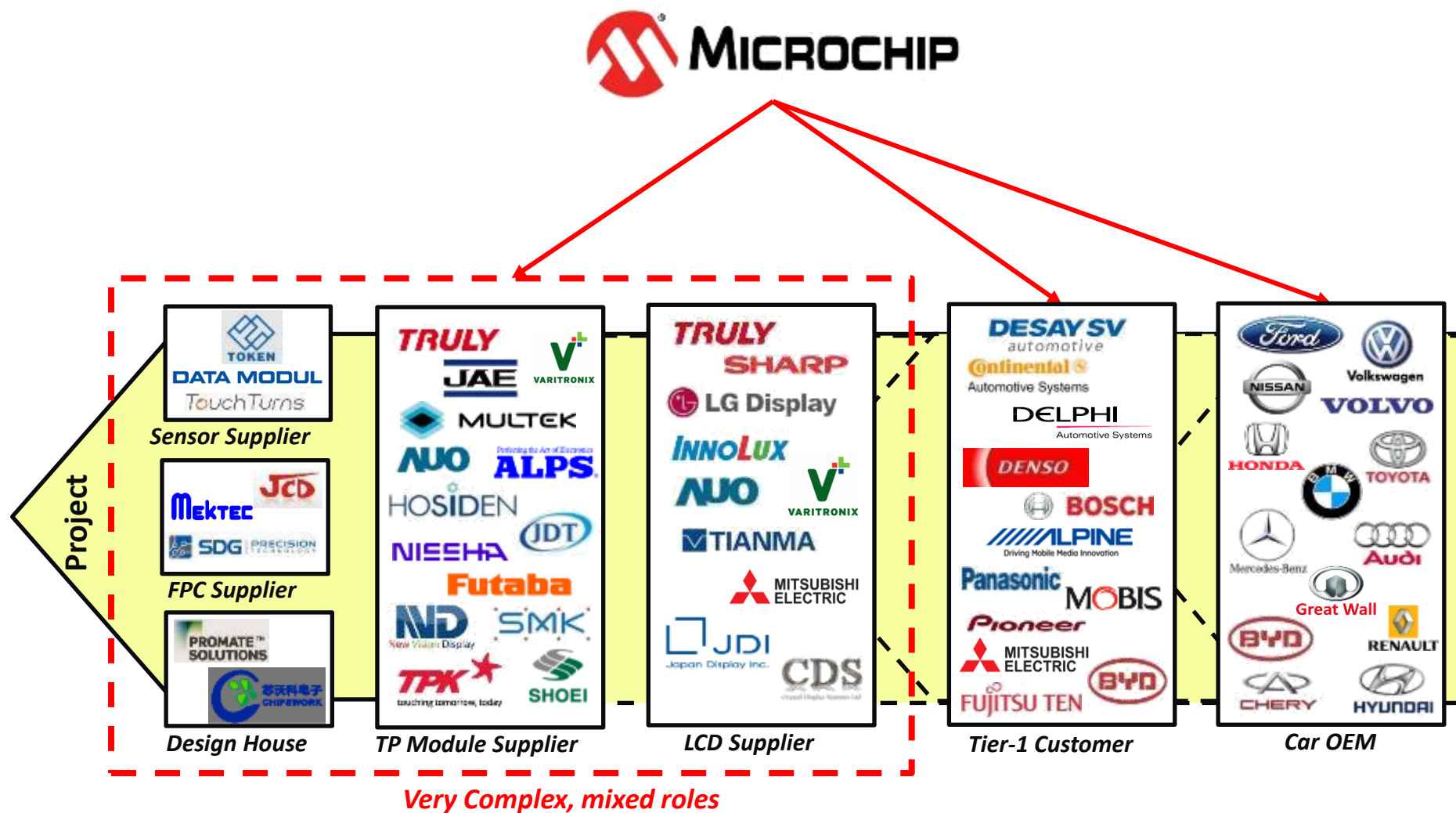


We keep on growing qualified partners ... please nominate & support!

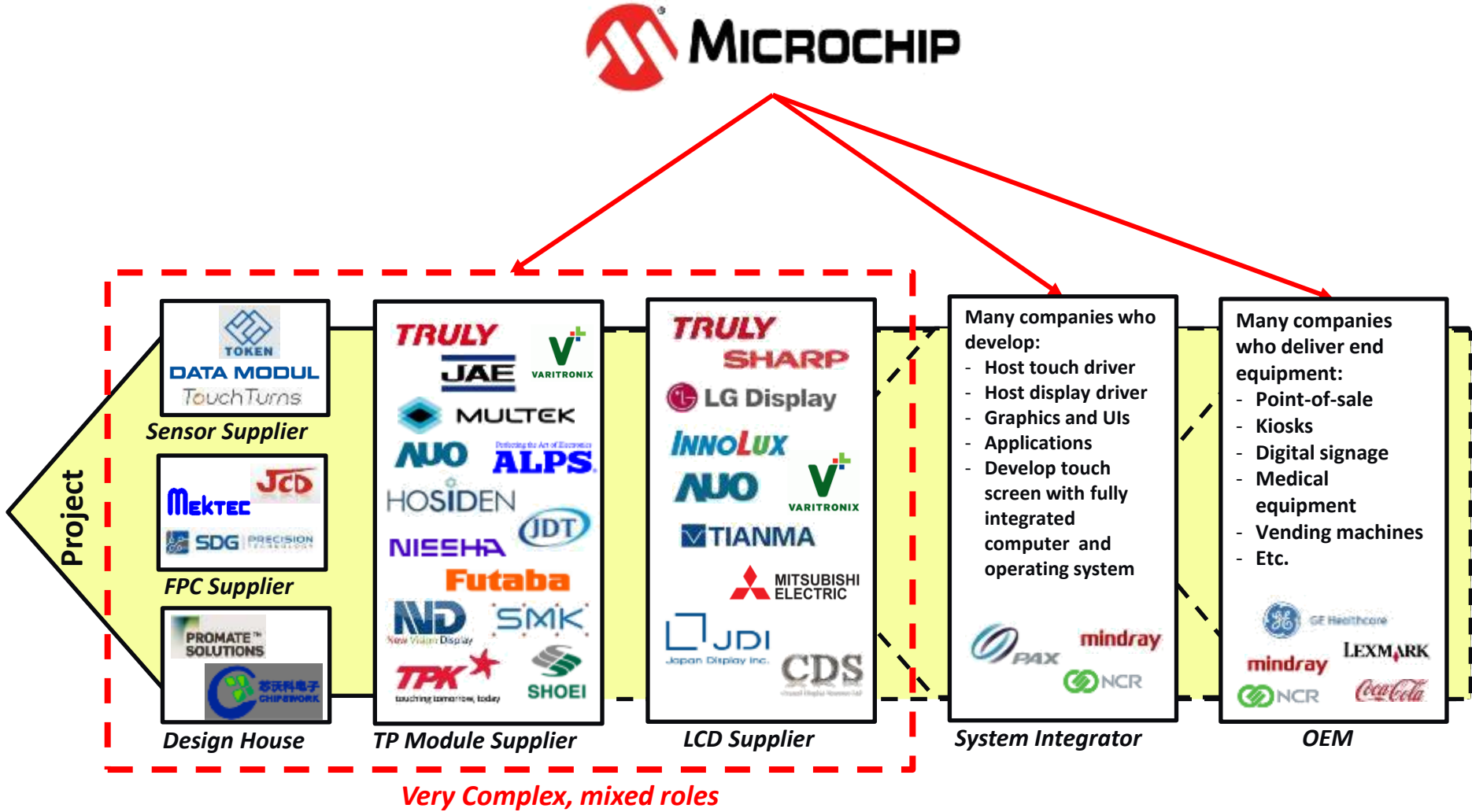
maXTouch Project Engagement Guideline

HMID maXTouch Product

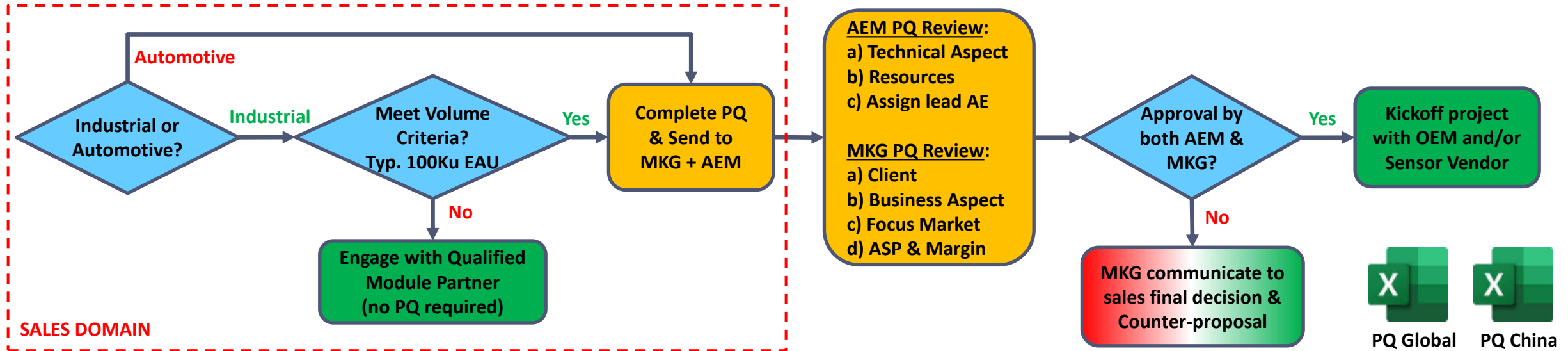
車廠專案：瞎子摸象，還是按圖索驥？



其他專案: 要找出來能決定規格的角色。



maXTouch Project Engagement Flow



- **Project Questionnaire (PQ)**
 - Used to capture relevant business opportunity and technical requirement details for new projects requiring direct HMID BU support
 - Use email for MKG pre-qualification before full PQ is completed
- **MKG:**
 - Automotive Opportunity: APG Marketing for Automotive
 - Industrial Opportunity: HMID BU Product Marketing (+James Yam as backup)
- **AEM: HMID BU Regional AE Manager**
- **Industrial volume thresholds will vary based on AE team loading and Touch ESE specialist availability at the time**
- **The IC decision maker in the supply chain will be the owner of the project, focus CEM or Disty (for non-focus client) shall create the OPP/REG of the corresponding project owner, avoid duplication of funnel in the system**
- **Focus CEM or DCEM (for non-focus client) has responsibility to verify with counterpart about the supply chain and existence of the projects**

Call To Action



Clean-up & Select correct functions in Model-N registration

- Select “**Human Interface**” in the Functions field if any Microchip device has used to implement Touch & Gesture function in the system
 - The device can be an 8-/16-/32-bit MCU & MPU, CAP1xxx, AT42QTxxxx, MTCH1xx & MTCH61xx
 - This is also applied for ATMXTxxxx (maXTouch) & MGC3xxx (GestIC)

The screenshot shows the 'Project Information' form. The 'Program' field is 'Touch Screen 25mmx25mm'. The 'Project Description' field is empty. The 'Functions' dropdown menu is open, showing options: Functional Safety, Human Interface (highlighted), Microcontroller Systems, Motor Control, and Power Conversion. The 'Industry Segment' is 'Appliance', 'Sub Segment' is 'Floorcare', and 'End Equipment' is 'Vacuum'. Other fields include 'Board: Touch C', '* Funnel Stage: 1 - Cli', '* Boards/Yr: 20,000', 'Total Value: \$0.000', '* Product Lifetime (Years): 3.0', 'Linked Quotes: [icon]', 'Linked Opp/Reg: [icon]', 'Linked to Opp #: []', and 'Megatrends: 5G, IoT, Data'.

A close-up of the 'Functions' dropdown menu. The options are: Functional Safety, Human Interface (highlighted with a red box), Microcontroller Systems, Motor Control, and Power Conversion. A red arrow points from the 'Human Interface' option in the dropdown to the '* Functions:' label in the adjacent text.

**Allow to select more than 1 function in one registration*

Remark: You can select more than 1 function in each opportunity. If the device will also be used for other functions, e.g. Functional Safety, you will need to add this function in the Functions Table.



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Microchip Touch and Gesture Solutions



Home Page: <https://www.microchip.com/design-centers/capacitive-touch-sensing>

Video: <https://microchipdeveloper.com/touch:videos>
<http://www.microchip.com.cn/newcommunity/index.php?m=Video&a=index&id=103>