

HZB TECHNOLOGY TRANSFER PRIZE 2021

A-Si Solar Technology

Development and Transfer for Transparent Photovoltaic Devices

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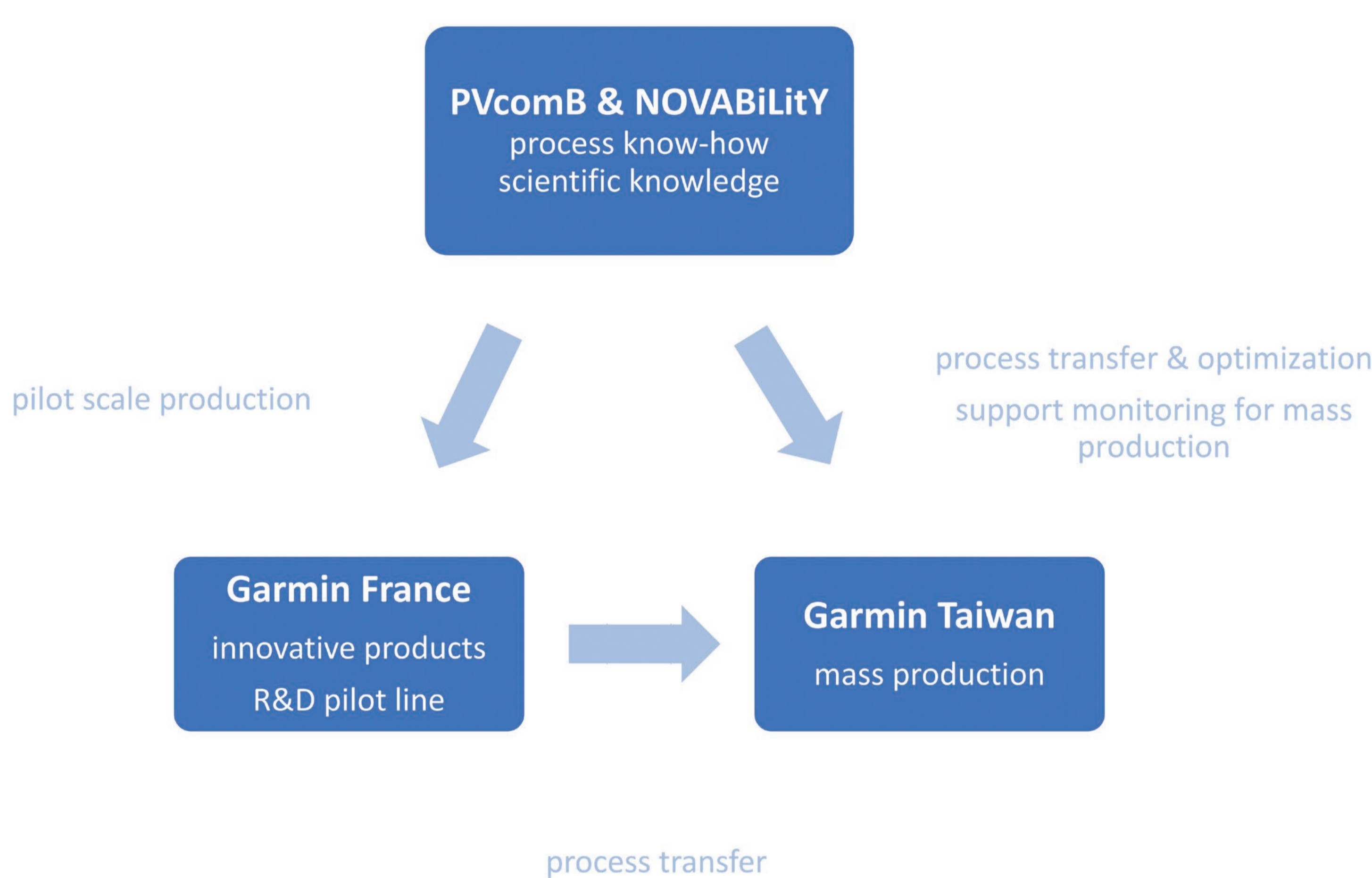
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NOVABiLiTY



Development of a-Si thinfilm at PVcomB



PV integration into a watch



Graphic: HZB

Graphical presentation of the collaboration

INNOVATION

In 2015 we have established an industry cooperation on transparent photovoltaic devices for consumer products. HZB has been developing and manufacturing amorphous silicon solar cells on thin glass substrates in pilot scale. In order to achieve high cell efficiencies along with an aesthetic appearance, innovative materials such as a 330°C sputtered transparent zinc oxide front contact and nanocrystalline silicon oxide layers for the p- and n-contacts of the PV device have been incorporated.

This technology attracted Garmin to step into the collaboration in 2019. After transferring the process know-how to two Asian fabs, mass production was ramped up and Garmin has sold more than 1 Mio solar watches until today. This technology is applicable to other products. Hence, market share is forecast to grow further.



Industry Cooperation and Market Potential

1. Generated approx. 1.3 Mio € income for HZB
2. Since end of 2019 over 1 Mio devices incorporating the technology were sold, generating an additional revenue of more than 100 Mio € for Garmin
3. Technology will be used in ever more products, increasing market capitalization further