Appendix 1 Manufacturing Composite Index (MCI) Business Infrastructure Economy and Market Education and Talent Manufacturing Innovation and (BI) sub-index Environment (EM) sub-(ET) sub-index Research (IR) sub-Activity (MA) sub index index index Quality of Road Length of GDP per person employed Research and Development GDP Growth % of a country average from paved and unpaved road BI1 EM1 (constant 2011 PPP \$) Expenditure as % of GDP IR1 1990 to 2016 MA1 Healthcare expenditure as % EM2 Bank capital to assets ratio (%) Scientific and Technical Journal Manufacturing Value Added annual % of GDP of GDP BI2 Compensation of employees (% of Articles published/per 1 million Average from 1990 to 2016 MA2 Improved sanitation facilities EM3 IR2 people MA3 (% of population with access) BI3 High Technology Exports as % of GDP Bank nonperforming loans to total Number of Patent Applications Fixed telephone EM4 Import of Plastic Injection Molding Machines gross loans (%) * Residents of a country per 1 for rubber or plastics as % of GDP MA4 subscriptions (per 100 IR3 Time to Import (Days) * EM5 million people people) Import of Vacuum Injection Molding Cost to import, documentary Industrial design applications, BI4 Machines for rubber or plastics as % of GDP compliance (USS) * EM6 resident, by count per 1 million MA5 Electric power consumption IR4 Import of Blow Molding Machines for plastics Cost to import (US\$ per container) (kWh per capita) BI5 and rubber as % of GDP MA6 EM7 Trademark applications, Direct Secure Internet servers (per 1 resident of the country per 1 Time required to start a business Machinery for working rubber or plastics or million people) BI6 EM8 million people IR5 for the manufacture of products from these (days) * Mobile Cellular Subscriptions MA7 materials-3D Printers as % of GDP Charges for the use of BI7 per 100 people intellectual property, CNC Lathes for Metal: Import of Lathes Fixed broadband payments as % of GDP IR6 including horizontal lathes, as % of GDP MA8 subscriptions (per 100 Government expenditure per ET1 CNC Boring for Metal: Machine Tools for BI8 people) student, secondary (% of GDP per boring by removing metal as % of GDP MA9 Foreign direct investment, capita) CNC Milling for Metal: Machine Tools for net inflows (% of GDP) BI9 Government expenditure per ET2 Milling by removing metal, knee-type and Automated teller machines tertiary student as % of GDP per not-knee type -- Numerically controlled as % (ATMs) (per 100,000 adults) BI10 capita (%) MA10 Domestic credit to private Number of Universities by Country ET3 CNC Drilling for Metal: Machine-tools for sector by banks (% of GDP) BI11 in Top Global 1000 list(drilling by removing metal, other than lathes Universities/per 10 million people) MA11 as % of GDP Researchers in R&D per million ET4 Military Expenditure (% of GDP) MA12 people of the country Industrial Robotics Imports as % of GDP MA13

Figure A1. MCI sub-indices and their measurement items

Appendix 2

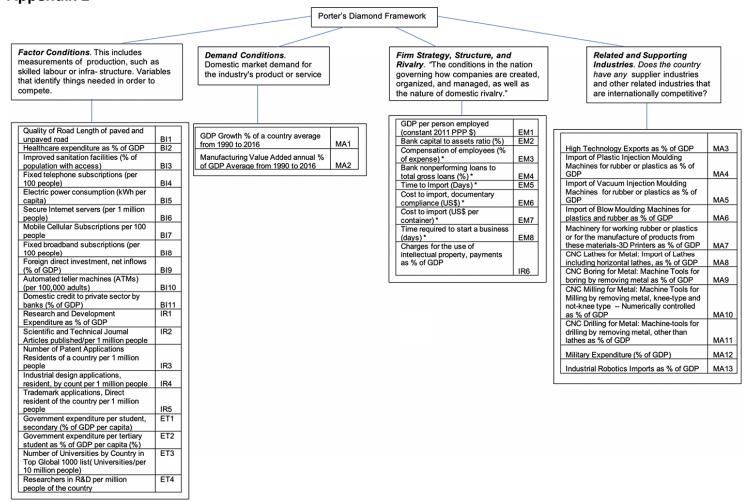


Figure A2. Proposed alignment of the MCI framework used with the Porter's diamond model