Wednesday 11 November 05:00-22:00 GMT: Taylor & Francis Online is currently being updated. You'll still be able to search, browse and read our articles, where access rights already apply. Registration, purchasing, activation of tokens, eprints and other features of Your Account will be unavailable during this scheduled work.

Technology Analysis & Strategic Management ›

Volume 31, 2019 - Issue 12

3,284 Views | 22 CrossRef citations to date | 0 Altmetric

Articles

Huawei's catch-up in the global telecommunication industry: innovation capability and transition to leadership

Lei Guo, Marina Yue Zhang, Mark Dodgson & David Gann

Pages 1395-1411 | Received 12 Jan 2018, Accepted 24 Apr 2019, Published online: 14 May 2019

Cite this article https://doi.org/10.1080/09537325.2019.1615615 Check for updates

Sample our Economics, Finance, Business & Industry Journals
>> Sign in here to start your access to the latest two volumes for 14 days

Full Article Figures & data References Citations Metrics

Reprints & Permissions Read this article Share

ABSTRACT

Using Huawei as an example, this paper analyses the catch-up process of latecomers from emerging markets during their transition towards global technological frontiers. We designed innovative indicators using USPTO patent data and used them to measure Huawei's catch-up in an established and an emerging technology field. We measure overall innovation capability (OIC) and core innovation capability (CIC), benchmarked against global forerunners, during its transition to industry leadership. Our findings indicate that Huawei built its OIC ahead of CIC. However, the effectiveness of its catch-up in CIC determined whether the latecomer firm achieved the leadership transition.

Our findings make an important contribution to catch-up theory and carry significant implications for catching up firms and incumbent firms.

KEYWORDS:

Catch-up | innovation capability | telecommunication | transition to leadership | Huawei | China

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes

1 In 2013, Huawei overtook Ericsson to become the largest telecom manufacturer in the world, according to market research and consulting firm Infonetics Research (http://www.infonetics.com/whitepapers.asp).

2 In 2016, Huawei was ranked by Thomson Reuters among the most innovative one hundred firms in the world along with such innovative firms from advanced economies as Apple and Google. It is the only firm on this list from mainland China.

3 Huawei's Annual Report 2017, https://www-file.huawei.com/-/media/CORPORATE/PDF/annual-report/annual_report2017_en.pdf?la=en, accessed on July 9, 2018.

4 http://www.wipo.int/pressroom/en/articles/2018/article_0002.html, accessed on July 9, 2018.

5 We chose USPTO patent data for two principal reasons: first, the US is the world's most competitive telecommunication market, and, second, US patent information is one of the most comprehensive measures in innovation in the telecommunication industry (Godinho and Ferreira 2013).

6 In 2000, only one non-telecommunication related patent was filed by Huawei at USPTO.

7 Due to truncation in patent data, we were unable to collect complete patent information, especially patent citations, of the subject firms after 2012. Hence, we use 2012 as the end year in our patent data analysis.

8 In 2009, the centrality of H04W (wireless communications) was ranked # 4 in Huawei's knowledge network.

9 The results are available upon request.

10 It is worth mentioning that, as shown in Figure 3(b), Huawei achieved a breakthrough in the share of seminal patents in 2010, when our analysis of this dimension stopped. Since then the firm has made considerable progress in 4G technologies.

11 The numbers shown in these figures are the value of any specific firm divided by the group mean in any given year.

12 For example, leading business media (e.g., Forbes, CNBC and The Verge) reported that in 2017 Huawei became the second largest smartphone provider after Samsung.

Additional information

Funding

This work was supported by China Postdoctoral Science Foundation: [Grant Number 2018M633533]; National Science Foundation of China (NSFC): [Grant Number 71802157].

Notes on contributors

Lei Guo

Dr Lei Guo is an assistant professor in the School of Economics and Finance at Xi’an Jiaotong University, China. His research areas include patent portfolio analysis, technology strategy, and catch-up strategies for latecomers in the telecommunication industry from China.

Marina Yue Zhang

Dr Marina Yue Zhang is an associate professor in Swinburne Business School, Swinburne University of Technology. Her research fields include technological catch-up and globalisation of latecomer firms in developing countries, innovation strategy and policy, high-growth entrepreneurial firms, and institutional entrepreneurship.

Mark Dodgson

Mark Dodgson is Professor of Innovation Studies at the University of Queensland, and visiting professor at Imperial College London. His research interests include innovation management and policy.

David Gann

David Gann is Professor of Technology and Innovation Management at Imperial College London, and Chairman of the UK Atomic Energy Authority. His research interests include exploring why and how innovation happens, the ways it continually transforms the world we live in, and how it can be managed.

Related research

People also read | Recommended articles | Cited by 22

Dynamic organizational learning: a narrative inquiry into the story of Huawei in China

Li-Chung Chang et al.
Asia Pacific Business Review
Published online: 18 Jul 2017

Huawei: leadership, culture and connectivity

Keith Jackson
Asia Pacific Business Review
Published online: 3 Oct 2017

Using thematic analysis in psychology >

Virginia Braun et al.
Qualitative Research in Psychology
Published online: 21 Jul 2008

Information for

Authors
R&D professionals
Editors
Librarians
Societies

Open access

Overview
Open journals
Open Select
Dove Medical Press
F1000Research

Opportunities

Reprints and e-prints
Advertising solutions
Accelerated publication
Corporate access solutions

Help and information

Help and contact
Newsroom
All journals
Books

Keep up to date

Register to receive personalised research and resources by email

Sign me up

Copyright © 2026 Informa UK Limited Privacy policy
Cookies Terms & conditions Accessibility

Taylor & Francis by informa

Registered in England & Wales No. 01072954
5 Howick Place | London | SW1P 1WG