Bank of Ireland Sectors Team Technology H1 2018 Review / H2 Outlook



Strong international investment in Irish technology firms
Cloud and Software as a Service continue to reshape the sector and drive demand

Technology H1 Review

Summary

Segments: Key sector segments are software / telecoms / IT services / digital.

Lending: Strong demand, in line with 2017, shareholder recapitalisations and R&D are key funding requirements.

Revenue Growth: We expect revenue across indigenous software, IT Services and digital sector to reach €3.5bn in 2018, growing at 20%.

International Investment in Irish Tech: Netwatch & Phorest deals show Irish software and services firms continue to attract international high quality/high impact investors.

Wage Growth: Average weekly earnings in IT sector of €1,179.97, a 7.6% increase on previous quarter. (CSO)

Skills Demand:

- CPL report core areas of demand remain Java, Python, C++ and NET software.
- Proven skills in data science, around technologies such as Hadoop are scarce so attracting significant premium.

Spotlight: Managed Services

At a recent Bank of Ireland Sector Seminar, Gartner analyst Sandra Notardato highlighted:

- ► IT services market represents 26% of total global IT spend.
- Top 10 Irish IT Services companies generated over €500m in revenues in 2017.
- Worldwide IT services market will reach \$1 trillion in 2018, growing by 7.9%.
- Acquisitions are playing a critical role in building capabilities in new areas like digital, building vertical-specific intellectual property.
- Automation is the most meaningful change to the IT services business model since offshoring.

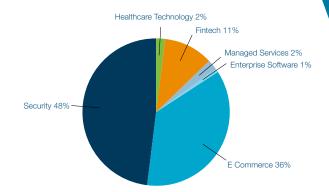
Spotlight: Software as a Service

- In 2016 SaaS represented 25% of the total enterprise software market. It is expected to reach 40% by 2021. (Boston Consulting Group)
- SaaS revenues are growing at 4x times faster than on premise license. (Gartner)
- Silverpeak reports European Q1 2018 SaaS valuations increased by 7% to 2.8x. revenue
- Bank of Ireland has funded number of firms as they optimize or transition to a SaaS delivery and revenue model.

Bank of Ireland Funding.

Profile of Bank of Ireland 2018 H1 Approvals.

Breakdown of H1 2018 Technology Approvals



Supporting Research & Development: Having a market led and properly resourced Research and Development (R&D) strategy is a key driver for success in the tech sector.

- Analysis of leading software vendors suggests they typically invest between 10-15% of headline revenue in R&D.
- Bank of Ireland has financed a number of trading software companies R&D projects, including Smarttech, a cyber security firm in Cork and 'travel telecoms firm SIMLocal in Dublin.

Business to Business (B2B): Technology companies providing solutions to other businesses, dominate lending demand. In particular, software and services in the areas of security, fintech and HR software.

H1 Sector Investments & Acquisitions

- Venture Capital Irish firms raised €332m in the first quarter of 2018, according to the Irish Venture Capital Association, a 34% increase on same period in 2017.
- ► €231 million of this was raised by technology firms.
 - ► Phorest: An enterprise SaaS product for saloons raised €20m from Susquehanna Growth Equity (SGE).
 - Netwatch: In one of largest managed security services consolidations, Carlow based firm Netwatch merged with National Monitoring Centre, CalAtlantic in Texas and Onwatchin UK. Bank of Ireland was sole lender for transaction, led by UK private equity (PE) house Riverside.
 - ► Escher Group: Dublin retail and postal software technology firm acquired by Hanover Investors, a UK PE firm. Deal valued Escher at €40 million.
 - Bank of Ireland recently provided \$8mUSD RCF facility to Escher.
 - Altcloud: Galway based Al enabled CRM software backed by Delta Partners, acquired by Genesys.
 - CloudRanger, server management software for businesses, based in Letterkenny was acquired by Druva.

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Growth

Expect indigenous tech sector to continue to grow at 20%+.

Global IT Spending Forecast

- 2018 worldwide end-user IT spending of \$4.1 trillion, up 3.0% in constant currency terms.
- Customer relationship management (CRM) software is fastest growing segment at 13.8% CAGR, as businesses across sectors invest to better understand and serve customers.

Cloud Revenue Outlook

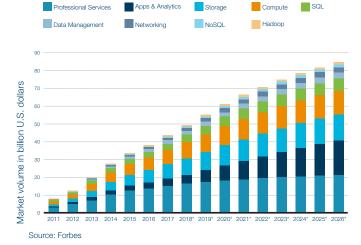
- Worldwide spending on cloud increased 47% to US\$17billion in the first quarter of 2018. (Canalys)
- Amazon Web Services (AWS) remains the market leader with 33% market share with Microsoft Azure at 15%.
- Microsoft continues to grow Azure business at impressive pace, reporting a 89% growth rate in Q2.

Big Data Market

- Big data market is projected to grow from \$17.1bn in 2017 to \$99.31bn in 2022 attaining a 28.5% CAGR.
- This growth offers opportunities to Irish IT services firms, data scientists and independent software vendors.

Big Data Market Worldwide Segment Revenue Forecast 2011-2026

Big Data Market Forecast Worldwide from 2011 to 2026, by segment (in billion U.S. dollars)



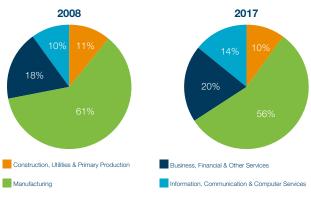
 Much of growth is being driven by availability of open source databases i.e. MySQL and supporting software i.e. Hadoop.

€60m University Bridge Fund from Atlantic Bridge: The fund includes investment from Bank of Ireland and is targeted at the commercialisation of research generated by third level research institutions.

Growing Employment:

Enterprise Ireland supported ICT firms increased their share of employment from 10.4% of supported firms in 2008 to 13.7% in 2017. Numbers employed increased from 16,497 in 2008 to 24,352 in 2017. (Department of Business Enterprise & Innovation)

Sectoral Proportions in Permanent, Full-time Employment in Irish-owned Agency-assisted Companies, 2008-2017



Source: Department of Business Enterprise & Innovation

Bank of Ireland

Bank of Ireland has a proven ability to lend to a range of high growth innovative technology companies.

As Ireland's leading business bank, we recognize that we have a unique opportunity to enable Irish business and communities we jointly serve to thrive.



Adrian Mullett

Head of Technology Sector

Adrian joined Bank of Ireland in 2013 as Head of Technology supporting the Business Banking and Corporate Banking teams. Prior to joining the Bank, he worked with Daon, a global security software company, where he was a senior research analyst focused on market strategy and technology trends.

Adrian holds an MBA from Trinity College Dublin, an MA from Queens University Belfast, and postgraduate diplomas in Financial Management (ACCA), SME Credit Analysis, and Information Technology (both from UCD). He is a former chair of Information Security Ireland.

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Sources: Forbes, Gartner, KPCB, Boston Consulting Group, IVCA, Renatus, CSO, Silverpeak, Canalys,