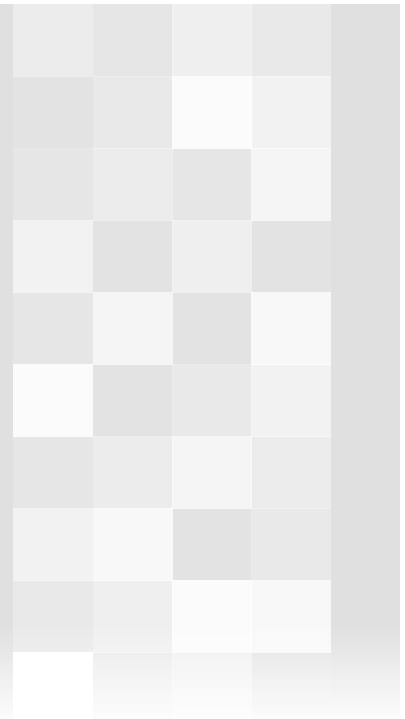


Digital Business Innovation: roadmap and challenges

Gianluigi Viscusi

EPFL-CSI - Odyssea - Station 5, CH-1015 Lausanne, Switzerland

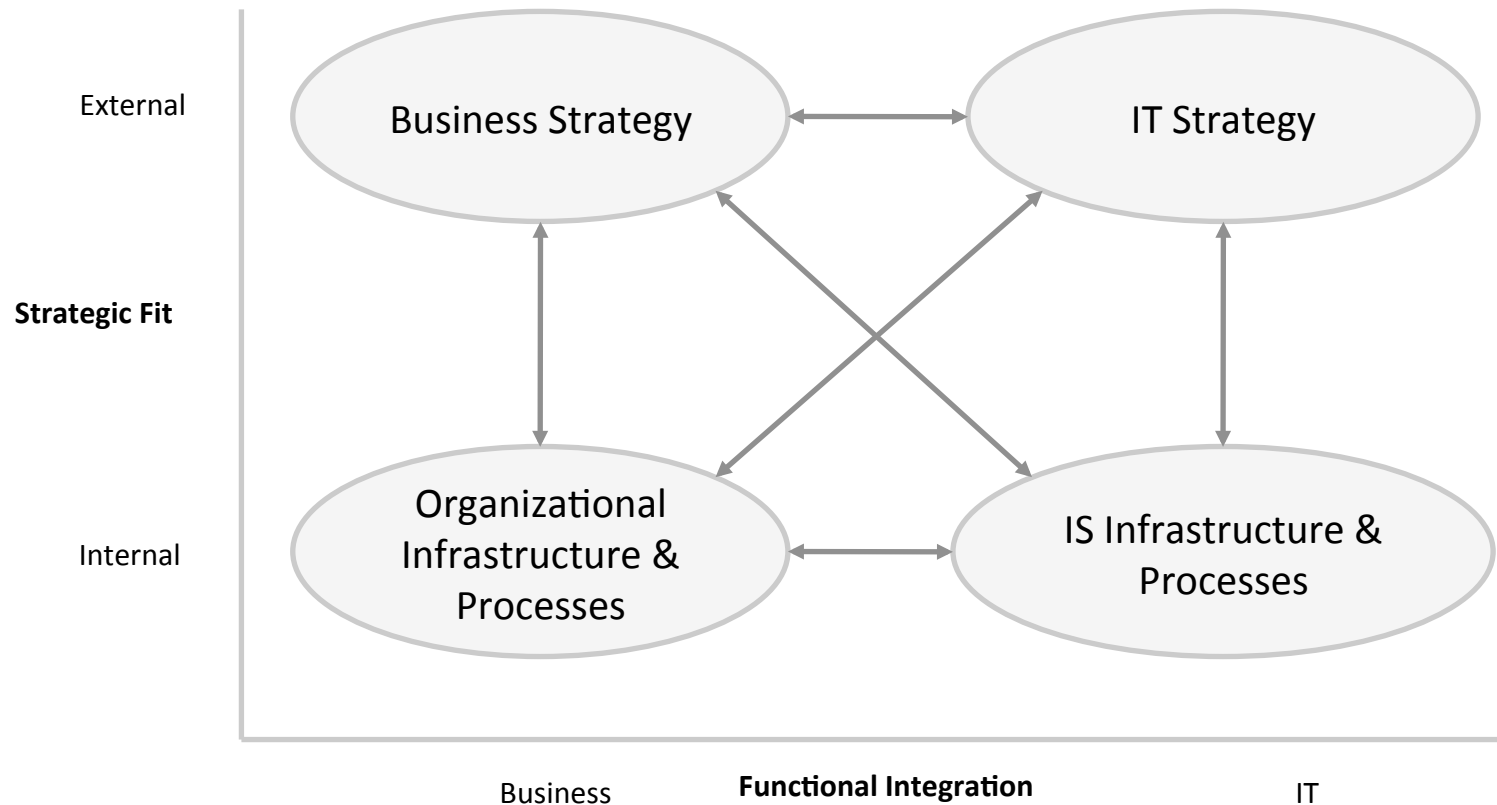
gianluigi.viscusi@epfl.ch



Agenda

- 1. Background**
- 2 Digital business roadmaps
- 3 Types of digital business attitudes
- 4 Digital platforms adoption in clusters

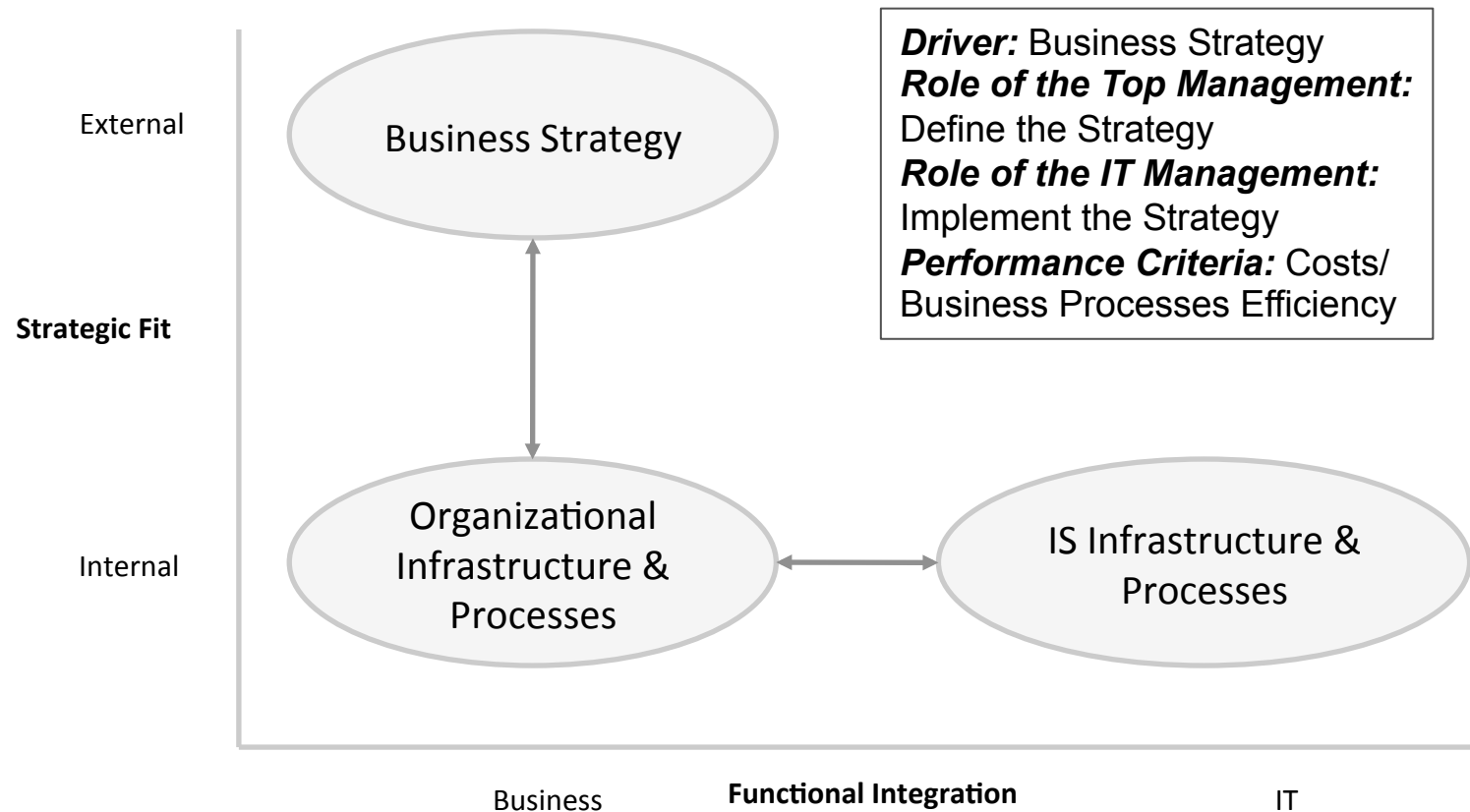
Alignment



Adapted from Laudon, J., Laudon K. Management Information Systems– 11th Edition vol. 2- Pearson, 2009

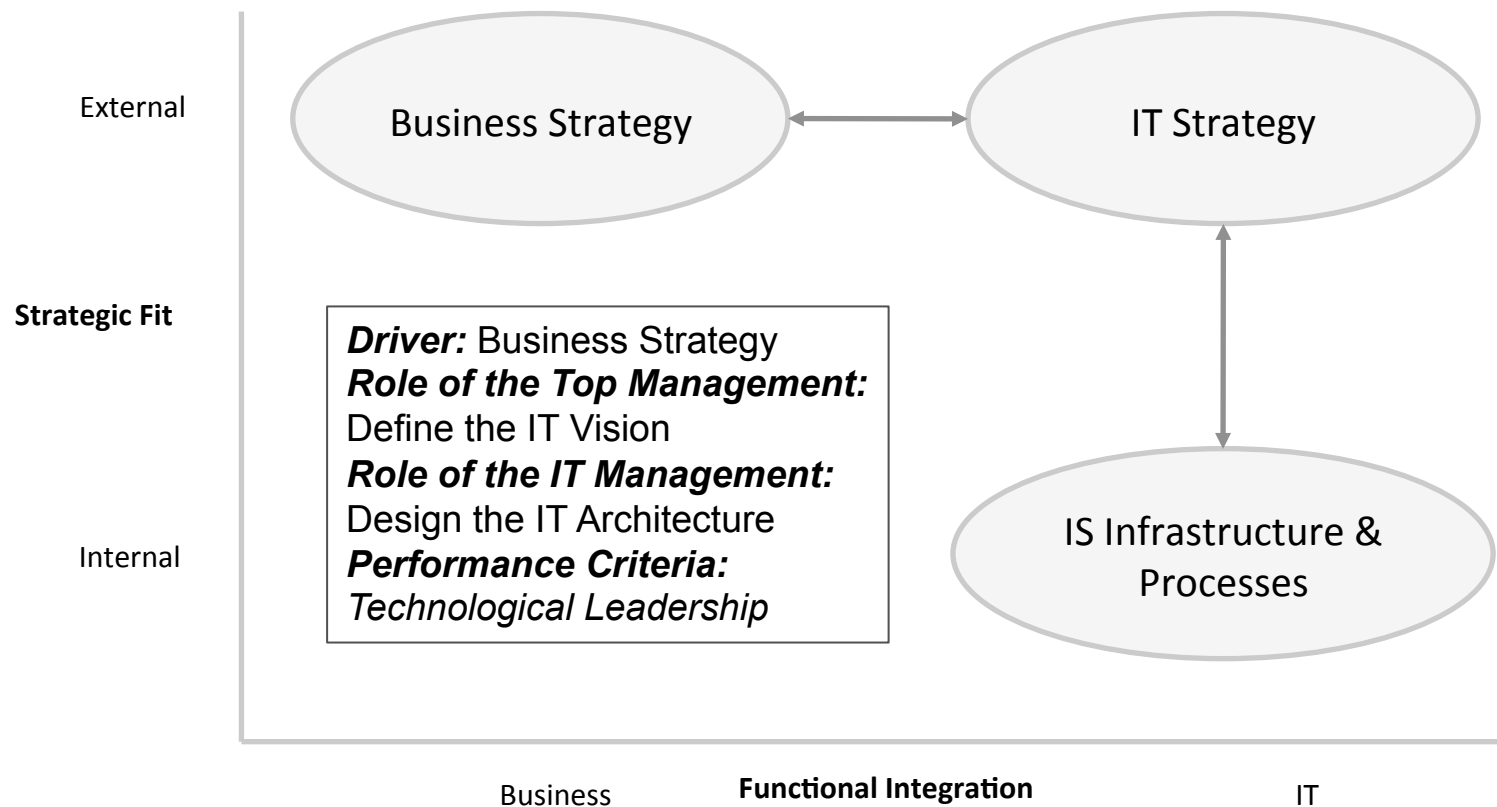
*Henderson, J.C. and Venkatraman, N. (1992). Strategic Alignment: A model for organizational transformation through information technology, in T.A. Kocham and M. Useem (eds.) Transforming organizations, 1st edn, New York: Oxford University Press, pp. 97–117.

Alignment focus: Execution



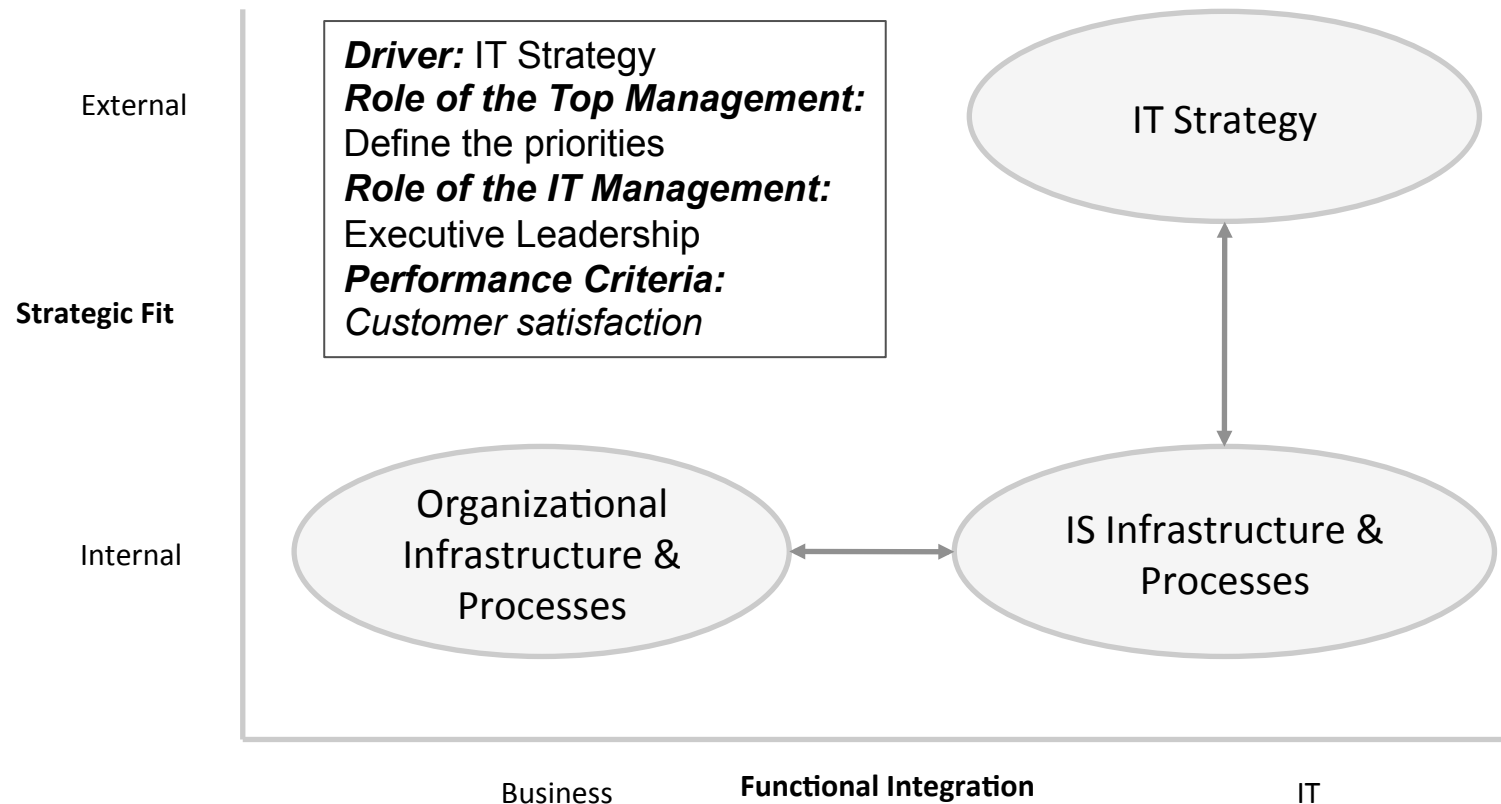
Adapted from, Henderson, J.C., Venkatraman, N, Scott, O., Aligning Business and IT Strategies, in Luftman, J.N. (Ed.) Competing in the information Age – Strategic Alignment in Practice, Oxford University Press, 1996

Alignment focus: Technology



Adapted from, Henderson, J.C., Venkatraman, N, Scott, O., Aligning Business and IT Strategies, in Luftman, J.N. (Ed.) Competing in the information Age – Strategic Alignment in Practice, Oxford University Press, 1996

Alignment focus: Service



Adapted from, Henderson, J.C., Venkatraman, N, Scott, O., Aligning Business and IT Strategies, in Luftman, J.N. (Ed.) Competing in the information Age – Strategic Alignment in Practice, Oxford University Press, 1996

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By 2015, India will have more Facebook (FB) users than any other country on Earth—tilting the social networking action away from the West and toward one of the fastest-growing emerging markets on the planet.

As of right now, India has close to 46,307,580 Facebook users, according to Socialbakers, a social media analytics firm in London. This makes India the third-biggest Facebook market, behind the U.S., now at 156,830,580 users, and Brazil, with 48,041,640.

According to Eleanor Armitage, a Socialbakers spokeswoman, the number of Indian Facebook users is growing 22 percent every six months, meaning that India will edge out the U.S. toward the end of 2014, when both countries are expected to have 170 million to 175 million members.

Prasant Naidu, who blogs about social networking in India at LighthouseInsights, attributes Facebook's explosive growth in the subcontinent to its huge, mostly untapped market. (India has more than 1.2 billion people, and Facebook users constitute less than 4 percent of the population, compared with 51 percent in the U.S.)

Digitizing vs. digitalization

Digitizing as a technical process “of converting analog signals into a digital form, ultimately into binary digits (bits)”



Digitalization as “a sociotechnical process of applying digitizing techniques to a broader social and institutional contexts that render digital technologies infrastructural”



Tilson D, Lyytinen K, Sørensen C (2010) Digital infrastructures: the missing IS research agenda. *Inf Syst Res* 21:748–759

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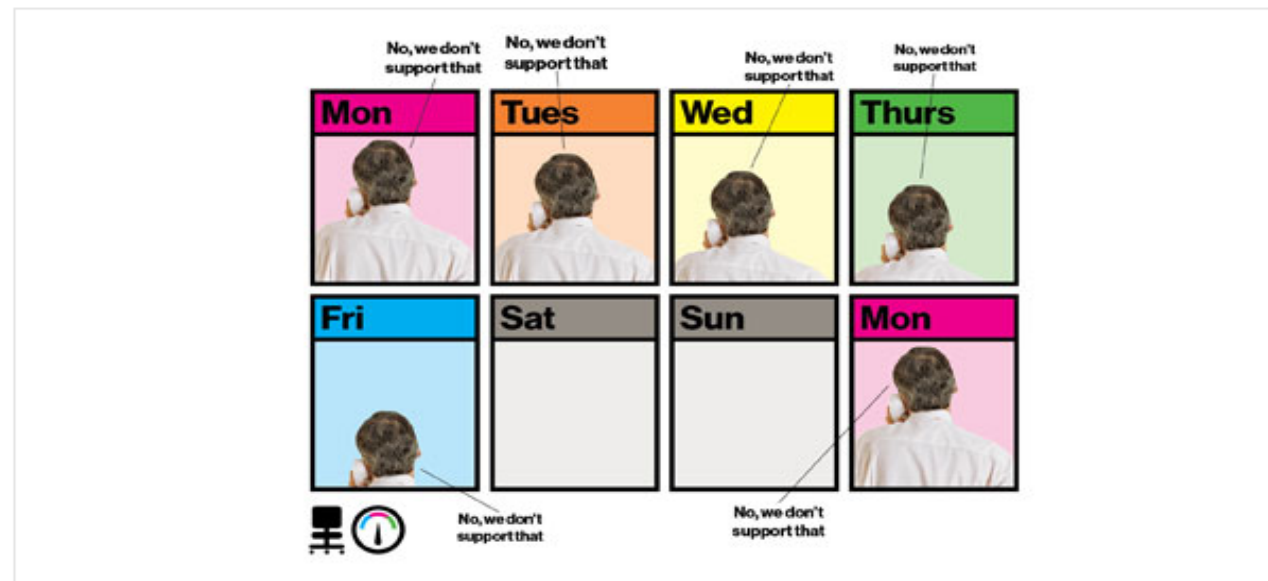
Innovation

HOW TO September 22, 2011, 6:30 PM EDT

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How to Be a Chief Information Officer

Google's CIO Ben Fried favors a counterintuitive move—giving people their choice of toolsets



Javier Pierini/Getty Images

Modularity vs. generativity

Modularity

- **Simplicity** in dealing with complex systems
- **Division of labour** in design and production
- **Mixing-and-matching** strategy
- **Process-centric** view of organizations and IT's role

Generativity

- Three unique material characteristics of digital technology (Yoo, Henfridsson, and Lyytinen 2010):
 - **homogenization of data**
 - **re-programmability**
 - **self-referentiality**
- Nearly limitless possibilities for recombination (or “**mash-ups**”) of highly **programmable digital artifacts** through **standardized interfaces** enable the generativity of digital technologies (Arthur, 2009; Lassig, 2008).

Source: Yoo, Youngjin. “The Tables Have Turned: How Can the Information Systems Field Contribute to Technology and Innovation Management Research?.” Journal of the Association for Information Systems 14 (2013): 227–236.

Modularity vs. generativity

Modularity

*A modular product begins with a **fixed boundary**. It begins with a **centralized designer** who creates an architecture and coordinates distributed actors to build subsystems.*

Generativity

*Generative digital modules are most often designed **without fully knowing the "whole" design** of how each module will be integrated with other modules.*

Source: Yoo, Youngjin. "The Tables Have Turned: How Can the Information Systems Field Contribute to Technology and Innovation Management Research?." Journal of the Association for Information Systems 14 (2013): 227–236.

Three problems

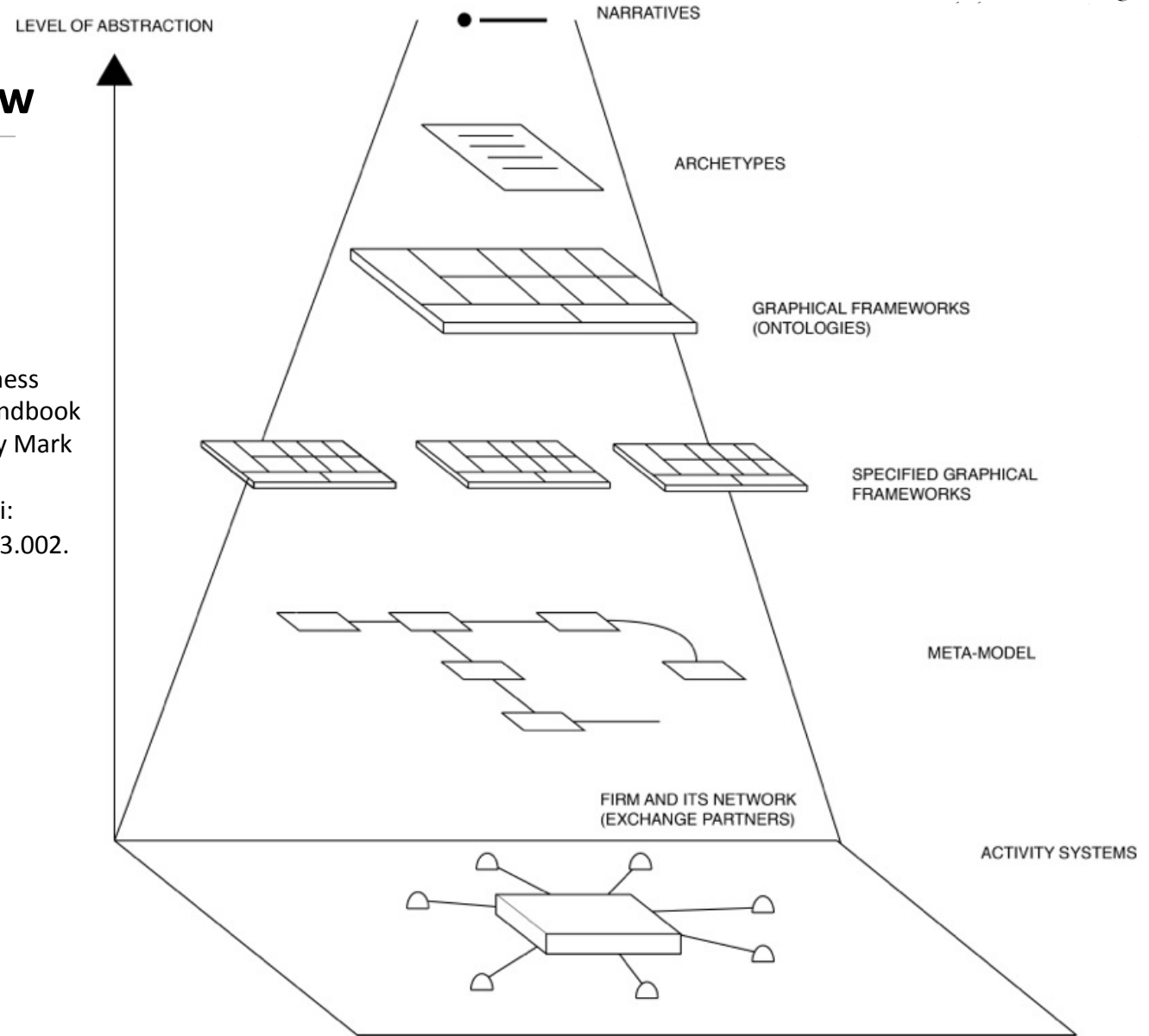
- **Entrepreneurial**
 - Choice of product-market domain
- **Administrative**
 - Rationalization of structure and processes
- **Engineering**
 - Choice of technologies for production and distribution

*Selection of areas for
future innovation*

Adapted From : R.E. Miles and C.C. Snow, *Organizational Strategy, Structure, and Process*. Stanford: Stanford University Press, 2003. A Stanford Business Classic.

Business model view

Source: Massa, L. & Tucci, C.L.. "Business Model Innovation." In The Oxford Handbook of Innovation Management, edited by Mark Dodgson, David M. Gann, and Nelson Phillips. Oxford Univ. Press., 2014. doi: 0.1093/oxfordhb/9780199694945.013.002.



Business model as...

*“a **system of interdependent activities** that transcends the **focal firm** and **spans its boundaries**. The activity system enables the firm, in concert with its partners, to **create value** and also to **appropriate a share of that value**”*

Zott, C., Amit, R.: Business model design: an activity system perspective. Long Range Plann. 43, 2-3, 216–226 (2010).

Business Model as a subset of

- Business Model Design
- Business Model Reconfiguration

Source: Massa, L. & Tucci, C.L.. "Business Model Innovation." In The Oxford Handbook of Innovation Management, edited by Mark Dodgson, David M. Gann, and Nelson Phillips. Oxford Univ. Press., 2014. doi:0.1093/oxfordhb/9780199694945.013.002.

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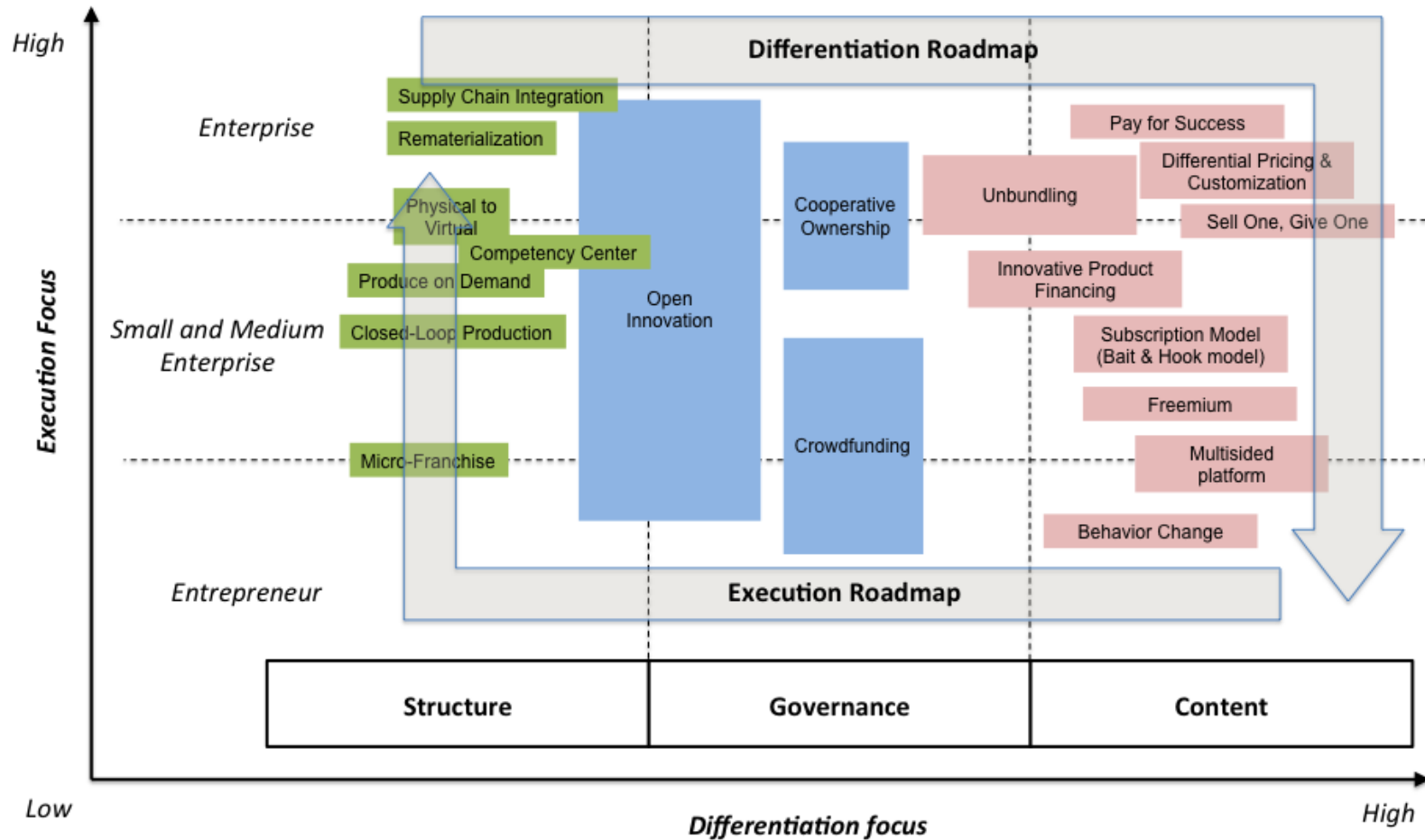


energy



future internet infrastructure

Execution vs. differentiation

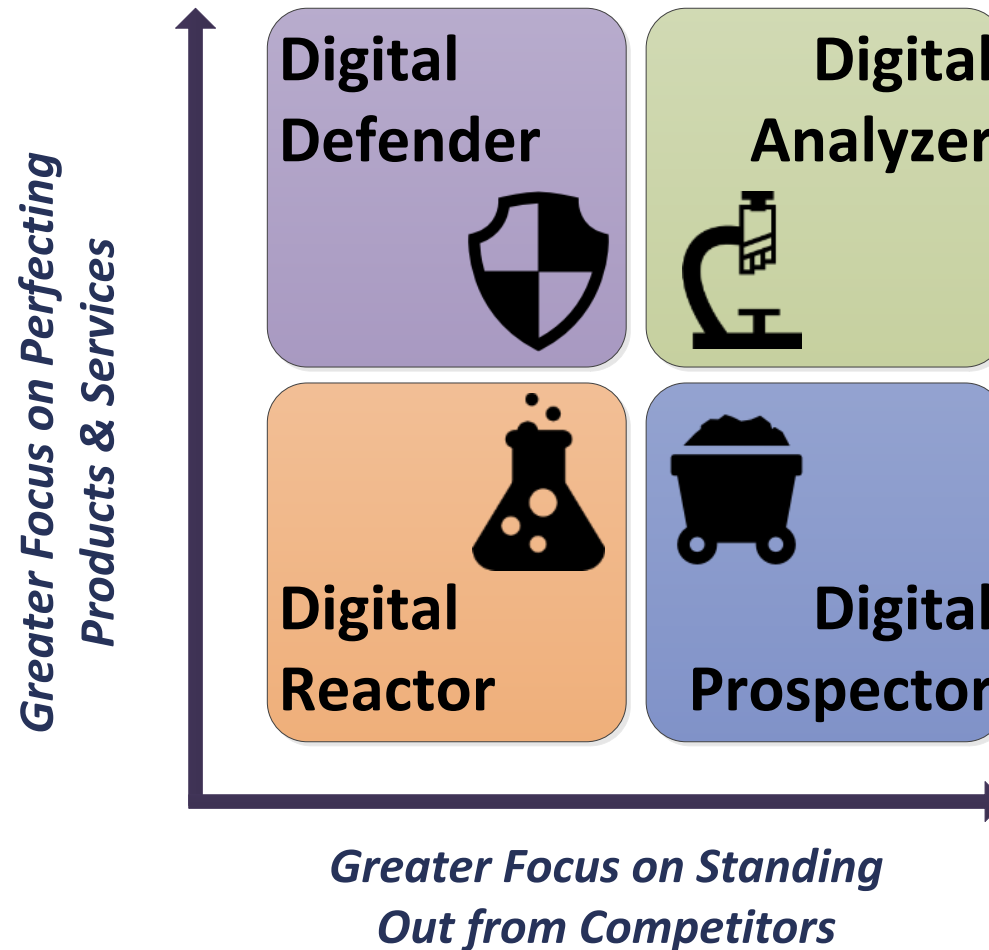


Miles and Snow (1978) four types of organizational adaptation

- **Defenders** – organizations which have narrow product-market domains
- **Analyzers** – organizations which operate in two types of product-market domains, one relatively stable, the other changing.
- **Reactors** – organizations where top managers perceive change and uncertainty in the organizational environment, but are unable to respond effectively.
- **Prospectors** – organizations which almost continually search for market opportunities, and they regularly experiment with potential responses to emerging environmental trends.

Source: Miles, R.E., and C.C. Snow. Organizational Strategy, Structure, and Process. Stanford University Press - Stanford business classics (Originally published in 1978, McGraw-Hill, NY, USA), 2003.

The Four Types of Digital Business attitudes



Source: Cave, B and Cave, J. (eds.) - Deliverable D1.3.1 - Business Value for Enterprise Innovation, FutureEnterprise-FP7-ICT-2013-10 Support Action

Digital Defender



Source: Cave, B and Cave, J. (eds.) - Deliverable D1.3.1 - Business Value for Enterprise Innovation, FutureEnterprise-FP7-ICT-2013-10 Support Action

Business Model Innovation (BMI)	Roadmap Focus	Target Subject
BMI#4 - Rematerialisation	Execution	Enterprises
BMI#7 - Supply Chain Integration	Execution	
BMI#1 - Closed-Loop Production	Execution	SMEs
BMI#3 - Produce on Demand	Execution	
BMI#2 - Physical to Virtual	Execution	SMEs/Enterprises
BMI#6 - Cooperative Ownership	Execution	
BMI#17 - Competency Centre	Execution	
BMI#19 - Transparency	Execution	
BMI#14 - Microfinance	Execution	SMEs/Entrepreneurs
BMI#15 - Micro-Franchise	Execution	



Digital Prospector

Business Model Innovation (BMI)	Roadmap Focus	Target Subject
BMI#16 - Behaviour Change	Differentiation	Entrepreneur
BMI#12 - Bait & Hook (Subscription model)	Differentiation	SMEs
BMI#9 - Freemium	Differentiation	SMEs/Start-Ups
BMI#21 - Multisided platform	Differentiation	

Source: Cave, B and Cave, J. (eds.) - Deliverable D1.3.1 - Business Value for Enterprise Innovation, FutureEnterprise-FP7-ICT-2013-10 Support Action

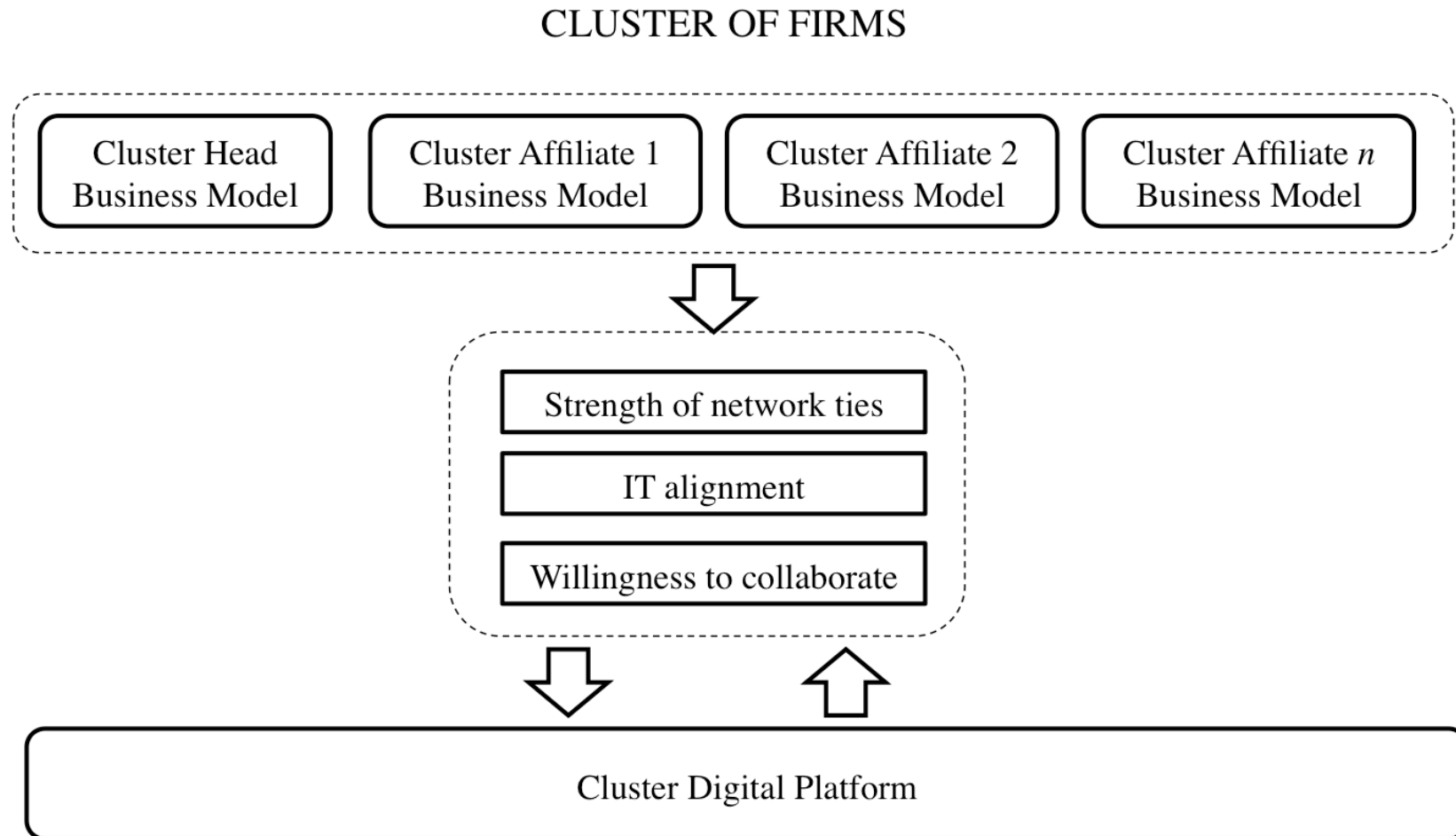
Digital Analyzer



Business Model Innovation (BMI)	Roadmap Focus	Target Subject
BMI#13 - Differential Pricing & Customisation	Execution-Differentiation	Enterprises
BMI#11 - Pay for Success	Execution-Differentiation	
BMI#10 - Innovative Product Financing	Execution-Differentiation	SMEs
BMI#5 - Sell One, Give One	Execution-Differentiation	SMEs/Start-Ups
BMI#20 - Unbundling	Execution-Differentiation	
BMI#8 - Crowdfunding	Execution/Differentiation	SMEs/Start-Ups
BMI#18 - Open Innovation	Execution/Differentiation	SMEs/Enterprises/Start-Ups

Source: Cave, B and Cave, J. (eds.) - Deliverable D1.3.1 - Business Value for Enterprise Innovation, FutureEnterprise-FP7-ICT-2013-10 Support Action

Digital platforms adoption in clusters: which role for business models ?



Source: Cremona, Ravarini, Viscusi (forthcoming 2015) Fitness of business models for digital collaborative platforms in clusters: a case study, accepted for presentation at the 1st International Workshop on Digital Business Innovation and the Future Enterprise Information Systems Engineering (DiFenSE 2015), held in conjunction with the 27th International Conference on Advanced Information Systems Engineering CAISE'15. June 9, Stockholm, Sweden.

Thanks for your attention

....any questions?

