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QUESTO PROGETTO È SOSTENUTO DALLA Fondazione Cassa di Risparmio di Padova e Rovigo

PROGETTI DI EccellEnza 2007/2008

CHE LO HA SELEZIONATO TRA I MIGLIORI PROGETTI DI RICERCA PRESENTATI NELL'EDIZIONE 2007/2008 DEL BANDO

Innovation, collaboration and Knowledge Management in IT services

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Exploring Knowledge Intensive Business Services
Entrepreneurship, business models and knowledge management strategies
Padua – March 18th – 19th, 2011

Overview

- ✓ Literature analysis
- ✓ Aim of the research
- ✓ Methodology
- ✓ Empirical analysis: data and cases
- ✓ Conclusions and limitations

What we do know about KIBS

Complexity

KIBS require the exchange of complex information, in order to define customers' needs and provide individualized solutions (Harvey, 1992; Coviello and Martin, 1999).

Interaction and learning

Participation of the user in the process of production and delivery (Barras, 1990; Gadrey and Gallouj, 1998; Sundbo and Gallouj, 2000).

KIBS are involved in interactive learning processes (Simmie and Strambach 2006; den Hertog 2000).

Learning by interacting (users - producers), knowledge fruit of a joint work (Asheim and Gertler, 2005); even new knowledge produced by the relational process (Aslesen and Isaksen, 2007).

Learning and innovation based on the DUI mode (Doing - Using – Interacting), where experience-based know-how (synthetic), rather than codified scientific and technological knowledge (analytic) (Corrocher et al., 2009).

KIBS plays a sort of brokering (carrier) role in transferring existing innovation to the client (den Hertog, 2000, p. 507), filling knowledge gaps or helping to bridge them (Bessant and Rush, 1995).

Collaboration requires close, long-term cooperation between the participants (Isaksen, 2004).

What we do know about KIBS

Proximity

"Proximity matters" since complex cognitive processes need large flows of codified information along with tacit knowledge (Corrocher et al., 2009, p. 176).

Extensive customization (Erramilli, 1990) and single, non-repeated transactions with individual customers (O'Farrell et al., 1998) are part of the issue.

Long distance relationships are quite difficult, the intangibility of services calls for local markets, especially for professional services (legal and accounting services) (Corrocher et al., 2009, p. 190).

Challenges and research gaps

Standardization and re-use of knowledge

Some scholars claim that the knowledge provided by KIBS firms could be heavily standardized (Bryson et al. 2004).

A part of the knowledge exchange can be a one-way exchange of ready-to-use knowledge incorporated in the service (Aslesen and Isaksen, 2007, p. 49).

Potential to develop less resource-intensive entry modes in internationalization, mostly based on the co-production with key-clients (Ball et al., 2008),

Re-use of knowledge and standardization of experiences developed with a customer in order to serve others, or developed locally and go global.

Operational and strategic value of the "stereotypal" customer

Effect on the reputation of the implementation success, especially in international markets

The research

Scope: to explore Knowledge management strategies and IPR strategies in ICT-KIBS based in the Veneto region. In particular, reveal the importance of inter-organizational relations in the development of highly-complex software systems.

Methodologies:

1) quantitative survey in the Veneto region.
2) qualitative in-depth investigation of national players.

The quantitative survey

Quantitative analysis of a sample of 122 ICT firms: Sample extracted out of a larger stratified sample of 471 firms selected randomly (based on Ateco 62.01.00, 62.02.00, 62.09.01), from the overall list of firms of the Italian Chambers of Commerce Register and belonging also to Desing and communication and Professional services. Sample checked for missing values and misplaced activities.

Survey conducted in July 2009 (data 2008), based on a semi-structured phone-based questionnaire composed of 36 multiple-choice questions covering:

- firm's general characteristics: type of activity (ATECO code), employment structure, overall turnover and contribution of different geographical areas, # of branches.
- entrepreneurial and organizational process: entrepreneurial initiative, entrepreneurs' competences, organizational structure, performance management systems, networks of collaboration.
- service and service relations: areas of specialization, type of product and services (level of standardization), type of customer, localization of the markets, firm's performances (turnover trend, financial indicators trend, # of innovations, etc.), type of competitors and competition, sources of knowledge, knowledge management systems, innovation.

Data coded and prepared for the statistical elaboration (Spss 18).

The quantitative survey

Main results-1

- Size: avg. 7,45; Min:Max 1:55, 1-4 class counts for 52%.
  Avg. Rev. €627k, 96% in Italy (62% Veneto);
- Competition: 1st competitor: 24,6% regional, 18,0% national, 23,8 no competitor.
- Performance: ROI is stable or augmenting in 80% of cases, international presence up in 9%.
- Location: disadvantage 18%; advantage 44%.

The quantitative survey

Main results-2

- Information sharing (med-high use): internet 60%, file/mail 85%; face to face 86%.
- HR performance measurement: formalized model 17% (70% not at all). Size matters!
- Technological infrastructure: ERP 34%; workflow mgt. 13%; DSS 12%; datamining 38%; e-learning 16%; intranet 66%; e-COM 24%; e-CRM 53%.
- IPR protection: reg. brand 19%; patents 9%; secret 3%; none 71%.
- Process Innovation (last 3 years): none or 1 82%; >10 14%.
- Product Innovation (last 3 years): none or 1 57%; >10 25%.

The quantitative survey

Main results-3

- Networking: none 35%, occasionally 25%; same sector/spec.n 12%; same sector complementary spec.n 24%; other 2,5.
- Partners: (marketing 10%), ICT consultants 60%, PFS 12%, PA 6%, Univ 10%, Sc. Pks. 7%
- Nature of the exchange: techn. Kn. 55%, people 13%, commercial K 28%, co-production of pdt/projects 50%. But: avg. #: 2 in Veneto, 1 in Italy.
- Suppliers importance (hi-very hi): technological competences 43%; NPD 41%; process refinement 28%; enter markets 28%.
- Customers importance (hi-very hi): technological competences 52%; NPD 60%; process refinement 44%; enter markets 52%.
- Interaction w/client: direct (supplier coordination) 43%; direct (alone) 55%.
- Standardization: ad hoc 51%, partially std 43%, completely std 6%. Service blueprints re-used in 33% of cases.

The qualitative investigation

Qualitative investigation through multiple case-studies: series of dyadic relationships between producers and clients (10). Theoretical sampling is biased in order to reach diversity rather than representativeness (Eisenhardt 1989; Yin, 1989; Locke, 2001; Siggelkow, 2007).

Focus: the implementation of ERPs, vertical ERPs and complex solutions in medium and large industrial firms.

RQ: what is the strategic importance of co-production activities in ad-hoc relations with key customers? In particular, how does an ICT firm have to manage the relation with key customers in order to be able to replicate the experience?

Research protocol:

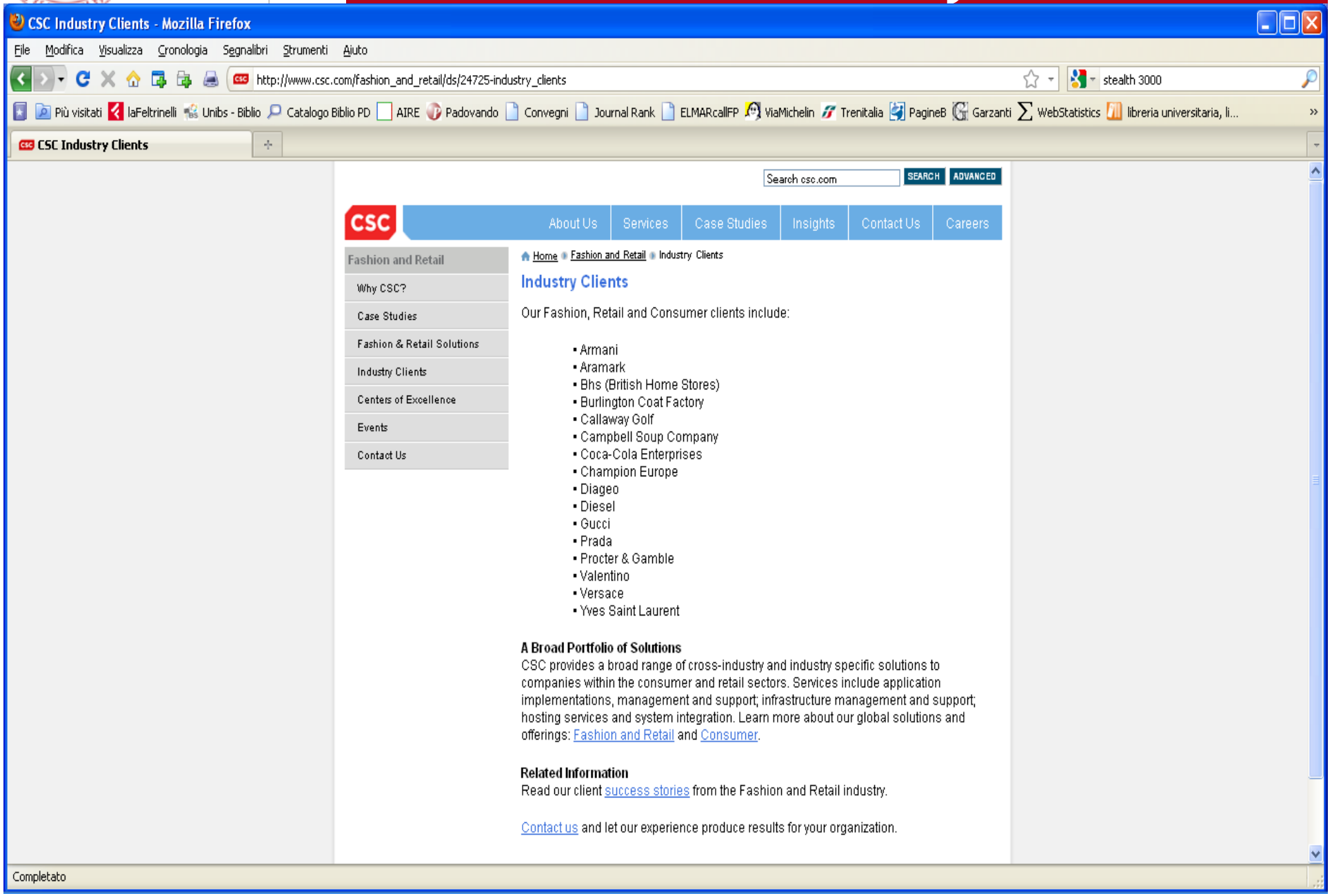
- ✓ Semi-structured interviews with entrepreneurs, top managers (mainly CIOs) and product managers.
- ✓ participating observation;
- ✓ secondary documental sources analysis;
- ✓ Periodical follow-up meetings.

Case	**Main product and market**	**Size**	**Collaborations as sources of Knowledge…**	**… and relevant learning relation (dyadic)**
CSC Padova	Vertical ERP, Fashion and retailing	200 (fashion)	Lead users as a key to access and develop markets	Diesel Group (4500) Vicenza
Sanmarco Vicenza	ERP, Machinery, Food	250	International clients as template extension enablers Network of lead users as software improvers	Dab Pumps (660) Padova
Zucchetti Lodi	ERP, verticals, components	1800	Specialists as a key to niches Distribution partners as developers	INCA (Patronato CGIL) (1725) Roma
Smea Bergamo	ERP, Manufacturers	250	Lead user as triggers of learning processes	Effezeta (550) Udine
Cad It Verona	Vertical ERP, Banking, insurance	650	Network of professional and institutional representatives as compliance experts	Cattolica assicurazioni (1500 branches) Verona
Thera Brescia Padova	ERP, Manufacturing, services	90	Production partners as cost reduction enablers	Sticar (100) Padova
Engineering Finance Brescia	Area Solutions	6500 (all)	Lead user as triggers of learning processes	Banca Popolare di Sondrio (305 branches) Sondrio
TeamSystem Pesaro	ERP, verticals	850	ERP and verticals for SMEs and Professional Services.	Berloni (500) Pesaro

Focus: the dyadic relation

Company	Activity	Size ('09)	Rev.s ('09)	Strategy (headquarter)	Strategy (local)
CSC – Computer Science Corporation Italy	Vertical ERP (fashion & retail), Padua (Veneto)	1,100 Italy 200 Padua	€86m (16,2b WW)	Knowledge and market expansion through the acquisition network of local software houses	Focalization on rich niches (international)
Diesel Group Molvena (Vicenza, Veneto)	Fashion & retail	4,500	€1.3b	International expansion (80 countries, 5000 POS, 300 flagship stores); differentiation of production and distribution sites (26 over 46)	Centralization of ICT management and information use needs updated systems

CSC: key customers



Diesel

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- Collection S/S 2011
- Beachwear
- Underwear
- Fresh & Bright
- Footwear
- Bags
- Timeframes
- Jewellery
- Shades
- Accessories

Special collaborations

- Diesel Adidas Originals
- Uffie
- 500 by diesel

DIESEL BLACK GOLD

- Collection
- Footwear
- Bags
- Accessories
- Fashion Show S/S 11
- Fashion Show A/W 11

DIESEL KID

- Collection
- Denim
- Baby
- Footwear

55DSL

- Collection
- 10.55
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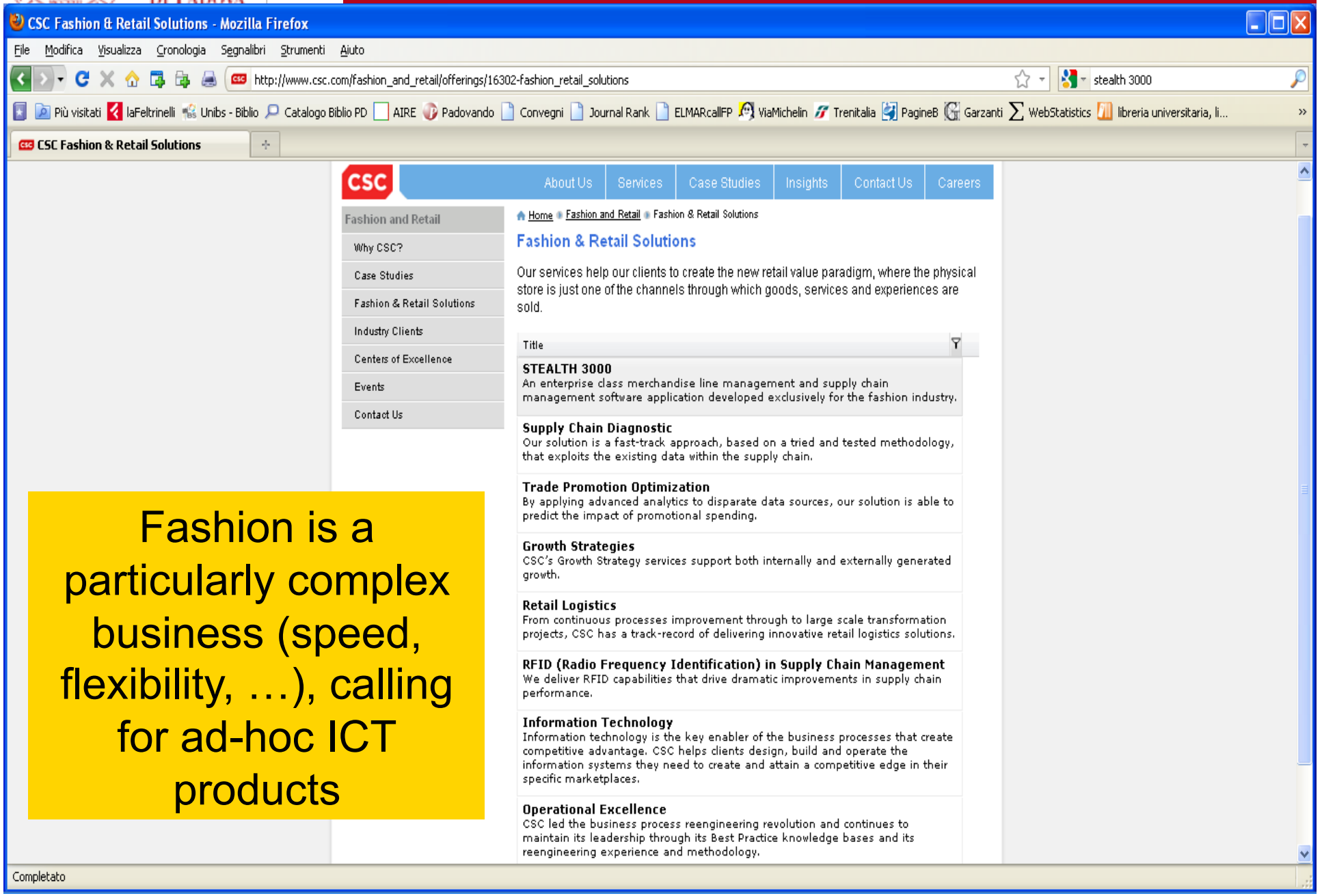
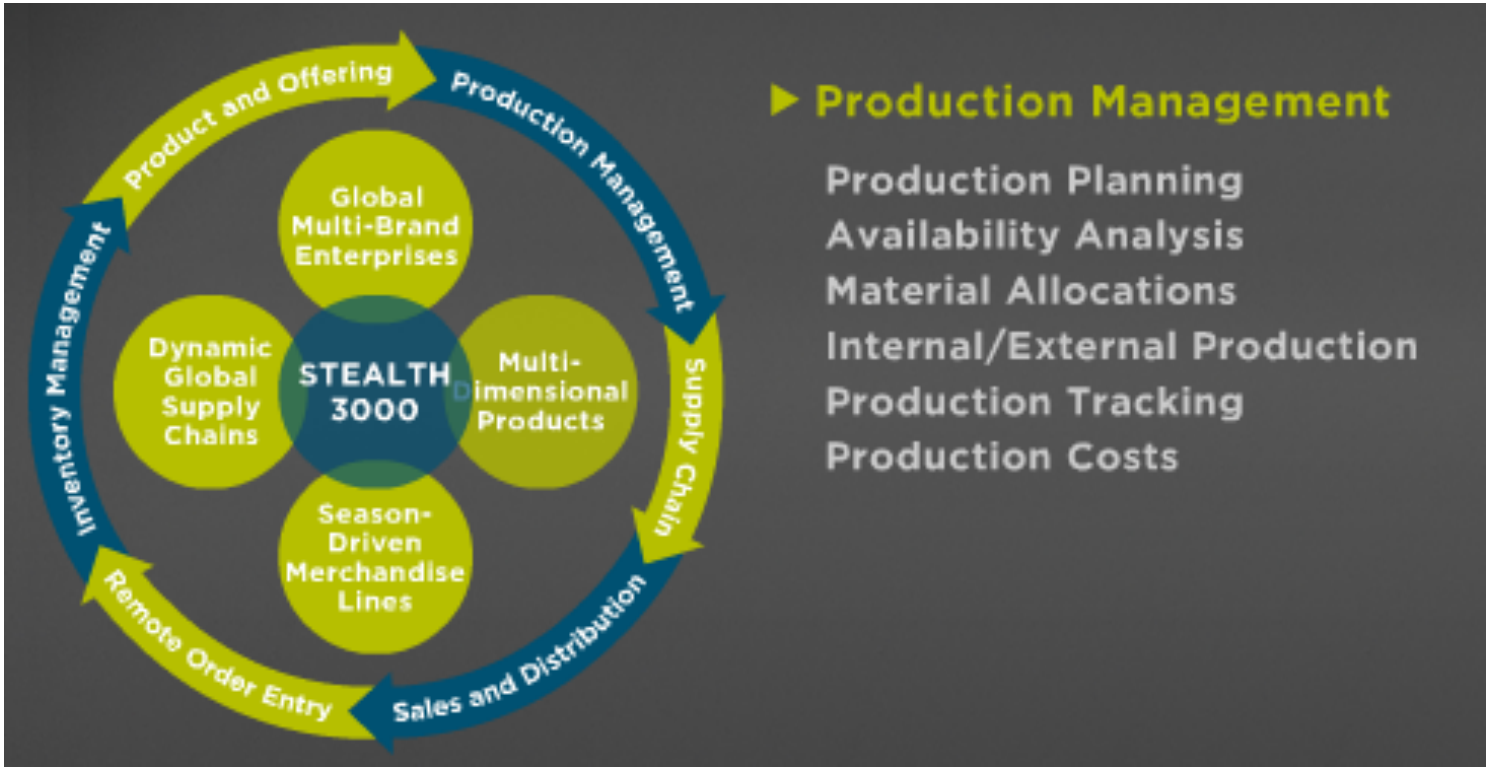
The software



Fashion is a particularly complex business (speed, flexibility, …), calling for ad-hoc ICT products

The software



Diesel's initial needs (2004-5)

- Already Stealth 400 user (3 in Italy), in 1995 Diesel firstly unifies ICT procedures globally.
- Stealth 400 strives to cope with the firm's growth: «in 2 years time (by 1996) we stopped paying maintenance fees».
- Diesel «organized as software producers» (50 in ICT dept.) developing several software add-ons. In fact, Diesel's Stealth400 gradually becomes a "proprietary" software
- Fear of system break down in 2004 lead to a SW selection

The reasons for choosing CSC

CSC's Stealth 3000

Pros

Already client

Good on OPMS

Expertise located in Padua

Cons

Young product

Partial coverage (need for SAP modules)

SAP's AFS

Pros

Integrated

Cons

Young product

Sap's strategy hindering AFS's Opms

Expertise concentrated in few people, in Milan

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The implementation (2006-08)

- Complex project, 26 diesel's production companies worldwide, 800 users.
- Not a migration: «3000's profoundly different from previous generations: some processes managed in a very different way…»
- Hundreds of interviews for the initial service blueprint.
- Sap's FI&CO are implemented (similar case…)
- Whole diesel's ICT dept. + 25 CSC's people on-site + CSC's Ravenna factory.
- Advanced Diesel's management practices cause complex customizations (specific agreement are signed for its future re-sell).
- In sum: 2 main SW (CSC's and Sap FI/CO) plus other 10 "satellites", like Retailpro, Click, Logimoda, …

Outcomes (Diesel)

«We have got over the hump, but 3 CSC's people still here" + a former Oracle's to hire»

«With us CSC has constructed a lot a components of the software", says CIO, and "they can dispose of the developments efforts…»

«the commitment of the whole team involved avoided implementation problems experienced by Valentino, Benetton and Levi's».

(CIO, January 2010)

Outcomes (CSC)

500 intervention requests in 2008-2009

Co-produced, replicable experience in an increasingly homogeneous industry

“Insider” professionals that share Diesel’s values

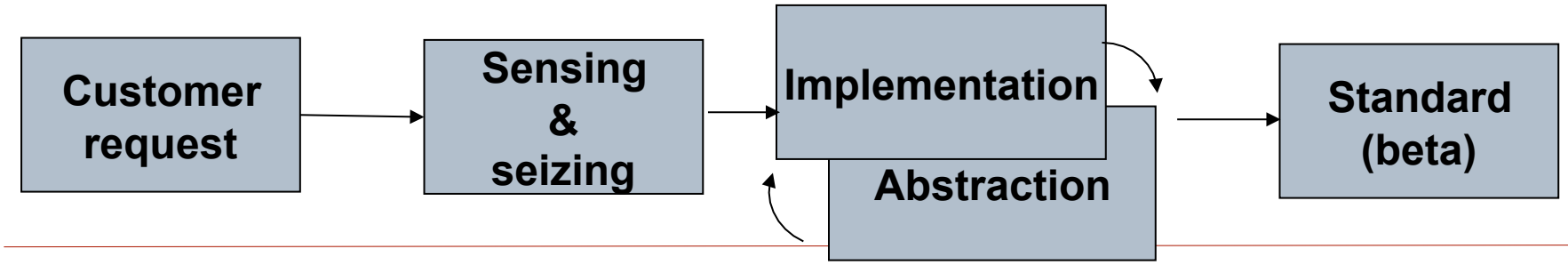
Creation of a Fashion BU for S-W Europe, based in Padua

60% MS in Italy

Standardization rationale in CSC

«To build a “vertical” is extremely costly (3/4,000 work days). To make it a standard means to face two types of costs: - abstraction (initial); - maintenance (in the LC). They have to be considered. We have a specific committee that decides on standardization and on approving customization requests by different project groups that may not be profitable, but are indeed strategic.

In order to decide, we have to consider where the market is and will be in the next future. There is probably worth to build a standard»



Summary and conclusions

The “right” customer in a sophisticated market can be the key to the access to local knowledge necessary for developing a world class standard product:

- Selective use of customers in order to gain future value (access to markets / niches); Proximity (territorial and cognitive) may have an important impact on the selection (territorial presence and degree of specialization).

- Initial great effort treated as an R&D investment, in particular for world-class products.

- Dynamic capabilities to sense the key-client and seize the market

- Exploration vs. exploitation mindsets: firms have to organizationally shift from one mindset to another, in order to make the first experience valuable.

Project capabilities are crucial, and help the replication of the model.

Limitations and future research

The research suffers several limitations, that could be overcome by a more in-depth analysis, both qualitative and quantitative.

The qualitative analysis has to be widened and completed with other cases coming from different areas (ongoing). A managerial model of the standardization process could be derived.

The quantitative analysis has to be completed and refined, in order to assess, in particular, the importance of product strategy on firm's organizational decisions (standardization vs. customization).

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Thank you for your attention

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What we do know about KIBS

KIBS are involved in interactive learning processes with customers and other organizations within the local innovation system (Simmie and Strambach 2006; den Hertog 2000).

KIBS' intensive interactions with clients and their knowledge environment are not spatially neutral. "proximity matters" since complex cognitive processes need large flows of codified information along with tacit knowledge for using and interfacing that information (Corrocher et al., 2009, p. 176).

When trying to solve the clients' specific problems and challenges, KIBS firms develop services and gain new knowledge in collaboration with their clients (den Hertog 2002; Aslesen and Isaksen, 2007, p. 46). Such a collaboration mode requires close, long-term cooperation between the participants. Software firms, in particular, rely on pilot clients to inspire and provide feedback on new solutions (Isaksen, 2004).

Long distance relationships between suppliers and customers are thus quite difficult, and the intangible nature of services is often associated with the local nature of markets. This intangibility is particularly evident for some kind of professional services, such as legal and accounting services (Corrocher et al., 2009, p. 190).

Theoretical gap: Re-use and standardization of experiences developed locally to go global in services.

Theoretical background: classics

In particular, the literature highlights "experiential knowledge" as a critical kind of knowledge in the international context and a driving force behind the process (Garvey and Brennan, 2006). Research by Eriksson et al. (1997) confirms that there is a cost associated with experiential knowledge in the internationalization of the firm. However, their findings indicate that accumulated internationalization experience is not related to specific country markets but is a firm-specific knowledge related to all markets (Garvey and Brennan, 2006).

Information-intensive services require the exchange of complex information, in order to define customers' needs and provide individualized solutions, like in management consulting, design and engineering and software development (Harvey, 1992; Coviello and Martin, 1999).

Some researchers have argued that information-intensive services face difficulties in separating production activities spatially from the consumption of their output, based on the necessary exchanges of tacit information for both production and delivery. Extensive customization (Erramilli, 1990) and single, non-repeated transactions with individual customers (O'Farrell et al., 1998) are part of the problem.

However, we argue that companies offering information-intensive soft services actually have considerably more flexibility with respect to their internationalization decisions. In line with Ball et al. (2008), information-intensive soft services are characterized by idiosyncrasies that can be exploited to provide firms with the potential to develop, and benefit from, less resource-intensive entry modes, mostly based on the co-production with key clients.

This approach emphasizes learning by interacting, primarily between users and producers. The knowledge that is generated by the interaction is the fruit of a joint work, and is an outcome that working in isolation cannot easily replace (Asheim and Gertler, 2005, p. 294), since some new knowledge is produced in the relational process, such as in the transmission (Aslesen and Isaksen, 2007, p. 49).

The debate has indicate the participation of the user in the process of production and delivery – often overlapping with consumption itself – as the most distinguishing characteristic of services in general that play an even relevant role in the case of knowledge-intensive services (Barras, 1990; Gadrey and Gallouj, 1998; Sundbo and Gallouj, 2000).

The process of learning and innovation in services is often referred to as the so-called DUI mode, that is 'doing, using and interacting'. Here, the firms rely on experience-based know-how, rather than the production and use of codified scientific and technological knowledge (the so-called STI mode) (Corrocher et al., 2009, p. 176).

As a carrier of innovation, a KIBS plays a sort of brokering role in transferring an existing (not invented by the KIBS) innovation from one firm or industry to the client firm or industry. An IT firm implementing and customising advanced and innovative ERP software (SAP, BAAN) in a client firm could be an example (den Hertog, 2000, p. 507). Sometimes KIBS are requested to fill knowledge gaps or to help bridge them (Bessant and Rush, 1995). As regards the bridging, it can vary from expert consulting, providing particular solutions to particular problems, to experience sharing, transferring what is learned in one context to another (den Hertog, 2000, p. 507).

Finally, relations can also include the delivery of standardized services from KIBS firms to their clients. The purchase of a standard software program, including installation and training, is an example. In fact, some scholars claim that the knowledge provided by KIBS firms is heavily standardized, or mostly referable to simple recipes (Bryson et al. 2004). This highlights the fact that a part of the knowledge exchange can be one-way, where the customer buys a ready to use service product and the relevant knowledge is incorporated in the service (Aslesen and Isaksen, 2007, p. 49).