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Product data management in a Nordic Telecom Operator: a maturity model

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Structure of the presentation

- Research problem and objectives

- Scope of the study

- Key terms and concepts

- Research methodology

- Research results

- Conclusions and recommendations for future work

1. Research problem and objectives (1/2)

Research questions

• To study, based on existing research results, whether there are any recurrent commonalities in the efforts to improve the telecommunications operators' product data management in the customer care and billing functions.

• To study, if the commonalities can be generalized into a maturity model, which would describe the typical progress of sequential activities and their interdependencies that would guide development efforts.

• To examine, whether this model is valid within the Nordic telecommunications service operators.

1. Research problem and objectives (2/2)

Objective

• To create an empirically tested product data management maturity model for guiding Nordic telecommunications operators' PDM development efforts.

2. Scope of the study

Scope of the study

• Nordic telecommunications operators, because their business environment, regulatory situation and historical background are somewhat similar.

• The PDM considerations are focused on the telecommunications operators' functions producing telecommunications services (service operators). PDM support for network services is outside the scope.

• The service operator's production perspective. The product development related PDM is left outside the scope due to clearly different objectives and target groups.

• In the production environment, the attention is paid to the operative systems in the customer care and billing functions because this environment contains the most significant operative product definitions.

3. Key terms and concepts (1/3)

Product data management

• Product Data Management (PDM) can be defined as a collection of systematic and coordinated methods to manage, create, read, update, and, delete product information. This information connects to commercial products to be sold for customers. In other words, PDM is a product handling issue. (Sääksvuori and Immonen 2002, McIntosh 1995)

• The primary goal of PDM is to be able to easily access, refine, reuse and deliver the product related information within the participating organizations and their information systems. In this way, PDM supports the product related processes and manages the product information that covers the whole lifecycle of the product .

3. Key terms and concepts (2/3)

Customer care and billing system

•Customer Care and Billing System (CCBS) is a widely used telecommunications term and means the combination of operative systems supporting the customer care and billing functions.

•Includes all the Customer Relations Management (CRM) and Enterprise Resource Planning (ERP) functionality relevant for a Telecom operator.

•The system complex is designed to manage real-time customer data, sales orders, rating and billing data, and product provisioning.

•The CCBS can be seen as the production system of a service operator, though the actual service platforms and the network eventually, in a technical sense, implement the product functionalities for the customers.

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3. Key terms and concepts (3/3)

Customer care and billing system: logical view
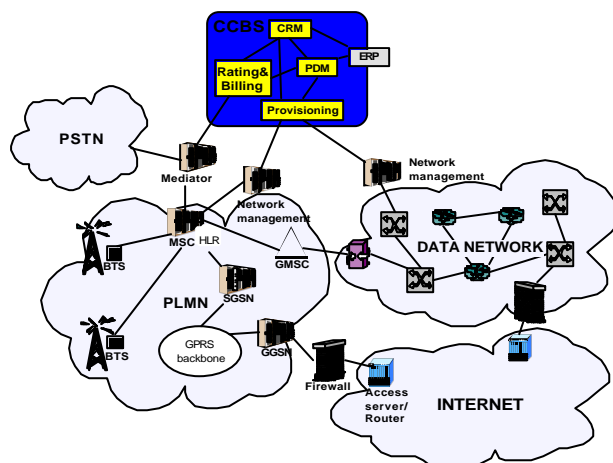
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4. Research methodology

Methodological backbone

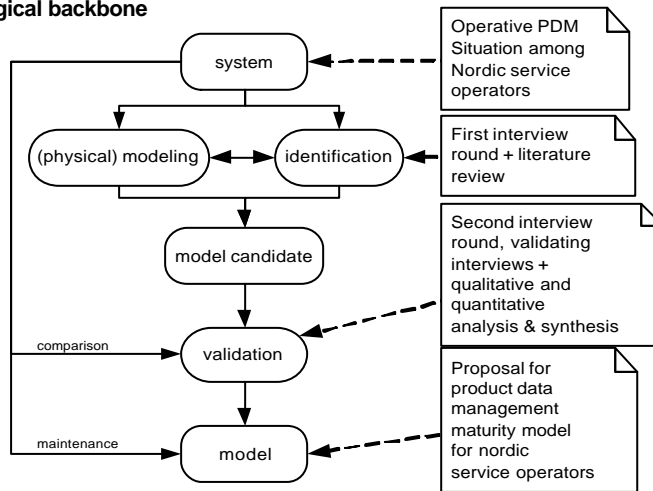system ← Operative PDM Situation among Nordic service operators

(physical) modeling ↔ identification ← First interview round + literature review

model candidate ← Second interview round, validating interviews + qualitative and quantitative analysis & synthesis

comparison → validation

maintenance → model ← Proposal for product data management maturity model for nordic service operators

(modified from: Ljung and Torkel, 1994, p.18, p.261, p.336)

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5. Research results (1/3)

Product data management maturity model: three views
<u>View 1: Traffic lights view</u>

•A tool for analyzing, at a coarse level, the current operative PDM maturity with a three-stage indicator. The stages have business implications, such as poor efficiency, lost revenue, higher corporate overhead, flexibility, and the ability to react rapidly in the dynamic markets. The business implications of the three stages are comparable to traffic lights.

<u>View 2: Activities in PDM development</u>

•Once the three-stage indicator has been used to indicate the current maturity stage in operative PDM, the ways of improving the maturity need to be considered. To answer this, the study provides another tool that guides the development efforts in the three dependent dimensions.
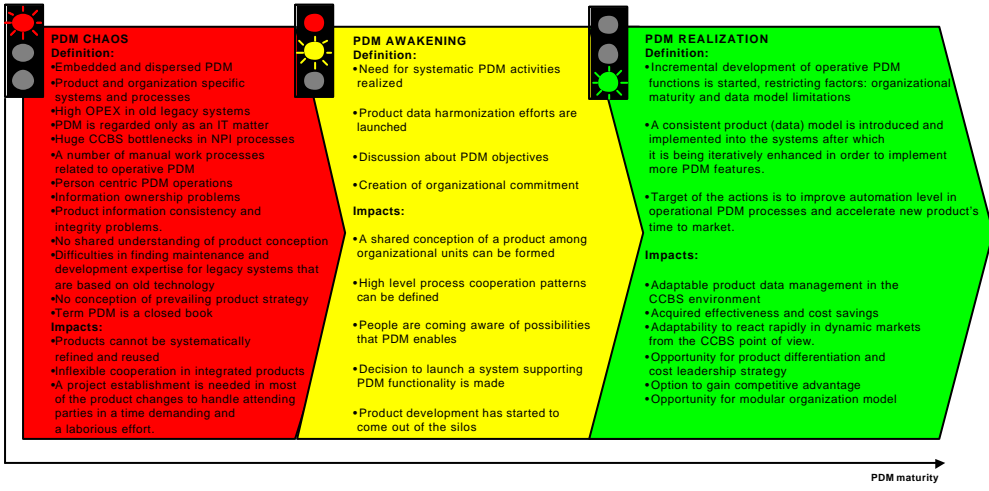
<u>View 3: Summary matrix</u>
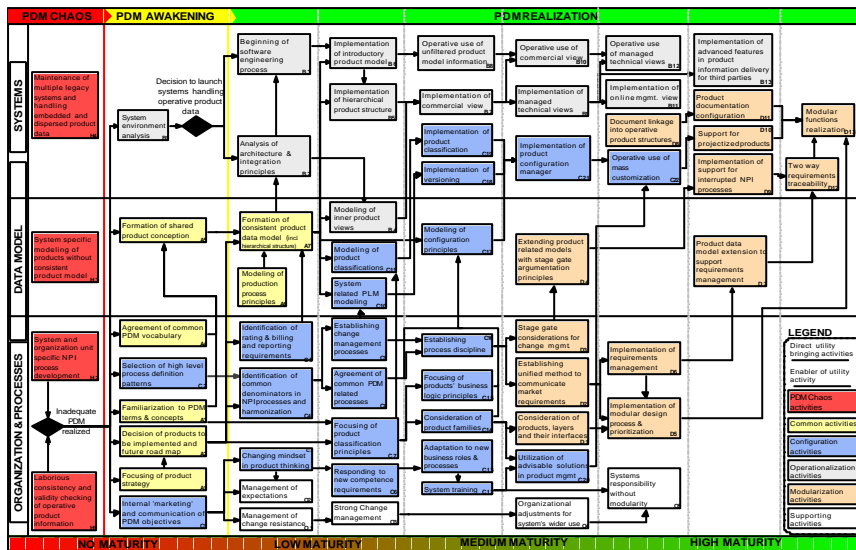
•Sums up the view 1 and 2

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View 1: Traffic lights view

PDM CHAOS
Definition:
• Embedded and dispersed PDM
• Product and organization specific systems and processes
• High OPEX in old legacy systems
• PDM is regarded only as an IT matter
• Huge CCBS bottlenecks in NPI processes
• A number of manual work processes related to operative PDM
• Person centric PDM operations
• Information ownership problems
• Product information consistency and integrity problems.
• No shared understanding of product conception
• Difficulties in finding maintenance and development expertise for legacy systems that are based on old technology
• No conception of prevailing product strategy
• Term PDM is a closed book
Impacts:
• Products cannot be systematically refined and reused
• Inflexible cooperation in integrated products
• A project establishment is needed in most of the product changes to handle attending parties in a time demanding and a laborious effort.

PDM AWAKENING
Definition:
• Need for systematic PDM activities realized
• Product data harmonization efforts are launched
• Discussion about PDM objectives
• Creation of organizational commitment
Impacts:
• A shared conception of a product among organizational units can be formed
• High level process cooperation patterns can be defined
• People are coming aware of possibilities that PDM enables
• Decision to launch a system supporting PDM functionality is made
• Product development has started to come out of the silos

PDM REALIZATION
Definition:
• Incremental development of operative PDM functions is started, restricting factors: organizational maturity and data model limitations
• A consistent product (data) model is introduced and implemented into the systems after which it is being iteratively enhanced in order to implement more PDM features.
• Target of the actions is to improve automation level in operational PDM processes and accelerate new product's time to market.
Impacts:
• Adaptable product data management in the CCBS environment
• Acquired effectiveness and cost savings
• Adaptability to react rapidly in dynamic markets from the CCBS point of view.
• Opportunity for product differentiation and cost leadership strategy
• Option to gain competitive advantage
• Opportunity for modular organization model

PDM maturity

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View 2: Activities in operative PDM development

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6. Conclusions and recommendations for future work

Conclusions

• The operative PDM is not just an IT issue

• As can be seen from the maturity model, there is a lot of development potential in the area of operative PDM.

• If the operative PDM is addressed paradigmatically, it provides a significant source of competitive advantage for a Telecom operator in the ever-increasing competition on the markets.

• The missing practical references to high PDM maturity within the Telecom sector even promotes the possibility to get competitive edge when improving operative PDM.

Areas of future research

• Further verification of the model's validity in a wider reference group.

• Intra and extra organizational PDM system integration

• The role of semantics in operative product data management.