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USE OF TECHNICAL DEBT AS COMPANY INNOVATIVENESS VALUE MEASURE

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**Goal: In nowadays market advantage conditions company
has to establish the objective and rationale product
innovativeness measure**



PRODUCT NEWNESS AND INNOVATIVENESS – PROBLEMATIC MEASUREABILITY

- Actual used innovativeness notions are too generalist and contextual,
- Analyzed and defined in correlation to customer compartment, thus subjective perception,
- Inadaptive in product innovation management process and difficult to quantifier in decisions models,
- Value creation in case of innovative product involves high degree of collaboration, which is often mentioned in mass customization perspective of company management process, but it's difficult to measure...

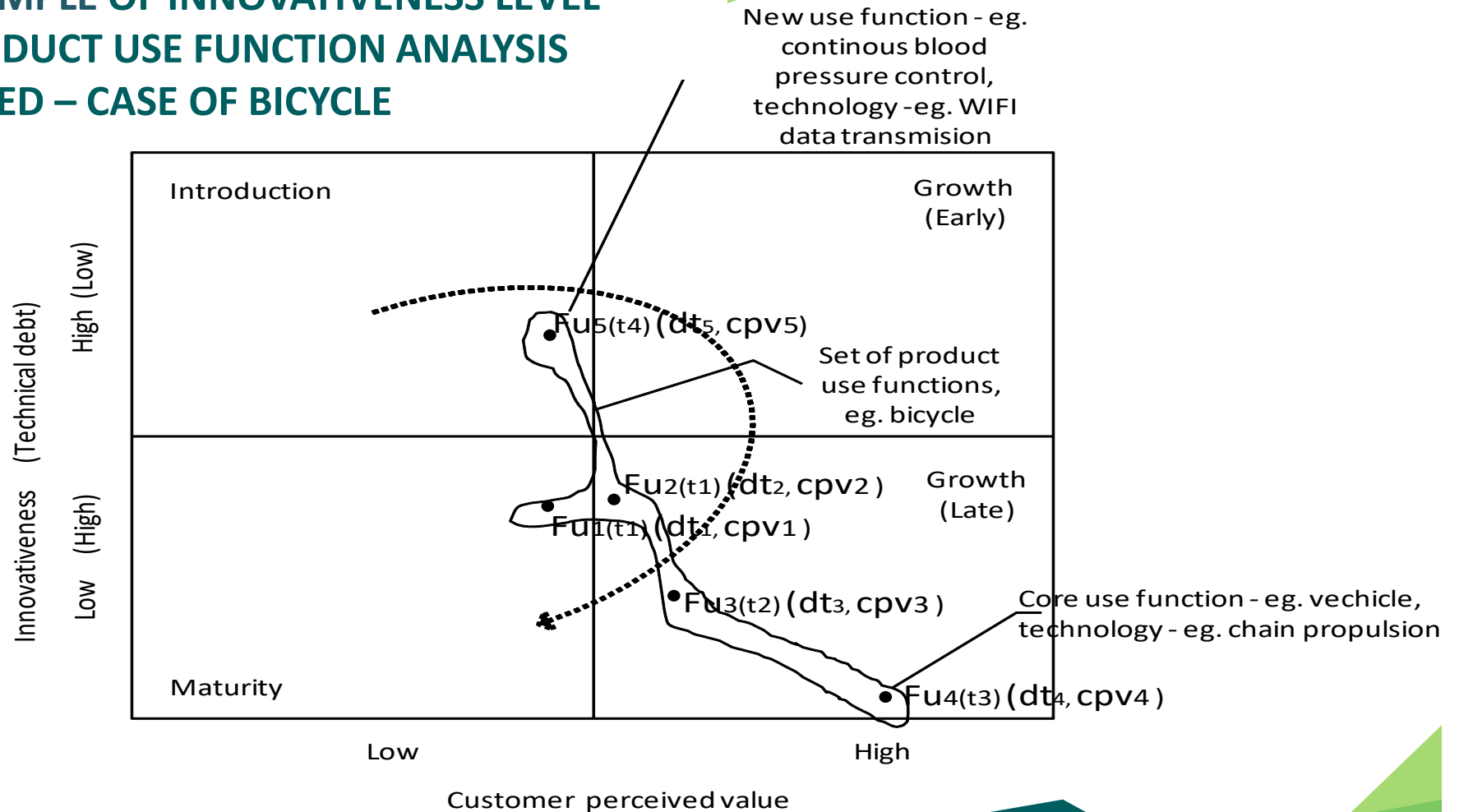


TECHNICAL DEBT BASED INNOVATIVENESS CONCEPT

- The actual managerial applications arise from the use of customer orientation in the case of innovative companies and concern the operationalization of the innovativeness concept,
- Innovativeness as market newness – hence the association with the time of its customer/consumer accommodation,
- Agile Management and its technical debt definition as function of client responsiveness to new (innovative) product,
- Value chain approach in case of new technology based product use functions makes the presented concept more detailed (s.4),
- Imposition of correlation between the technical debt and innovativeness (based on technology life cycle model) implies also the impact on consequent value creation process.



EXAMPLE OF INNOVATIVENESS LEVEL PRODUCT USE FUNCTION ANALYSIS BASED – CASE OF BICYCLE



where $Fu (t_1, cpv_1)$ is the analyzed use function, derived from technology (t1) with the value (dt1) of assigned technical debt and described by value (v1) of customer perceived value (cpv1)

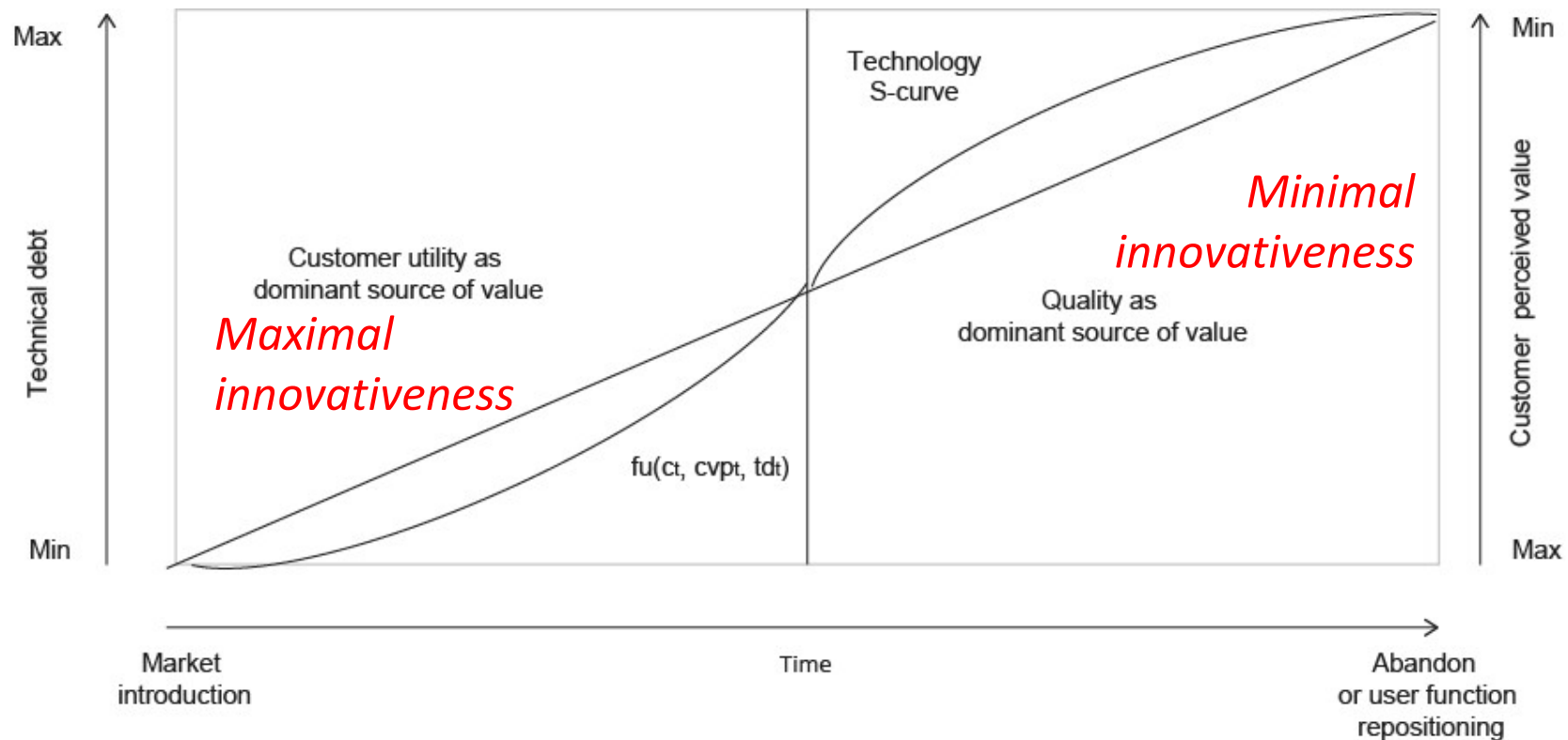


MANAGERIAL IMPLICATIONS

- Concrete measure of product innovativeness level is possible,
- Product can be perceived as the sum of use function, possibly each based on different technology and being in different phase of life cycle,
- In case of new technology based product, quality becomes a parameter possible to optimize in function of customer perception
- Possible to analyze exiting company technology portfolio and to compose it in dimension of future optimal technology debt and offered customer value.
- New technology strategy model preparation becomes more rational



CONCEPT OF USE FUNCTION VALUE AND INNOVATIVENESS DYNAMICS UNDER THE MOORE LAW



Source: Own



CONSEQUENCES

- The gap between the offered product state and those attended by the customer becomes the source of technical debt.
- Dynamics of use function or product technical debt indicates the innovativeness level and its changes in market offer period.
- Technical debt changes implies innovativeness changes, which provokes changes in product value or in use function value variation.
- Also the level of product novelty varies in function of different functional-hedonic values sourced in the use of new product.
- In consequence, the level of product innovativeness is proportional to range of offered use function, thus possible adaptation of M.E.Porter value chain as the model of innovative product composed of different use functions.



CONCLUSIONS

Presented conception of technical debt use as product innovativeness permits:

- to measure in more concrete way the product innovativeness level (parameterization), particularly in case of new technology based offer,
- to assess the innovativeness potential of new technology based companies,
- to set out the innovation product based company strategy model in conditions of market differentiation and diversification.
- to analyze and to model the innovation product or service technical debt dispersion through its value chain