Good designers get things done. Integral design projects as a driver for innovation.

> Introduction

> The nature of product design

> Integral product design

> Examples

> Discussion integral x-design academic programmes.

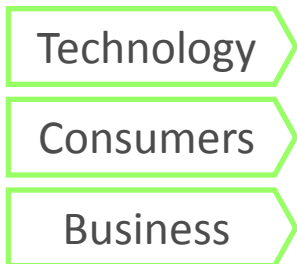**Contact**: Menno Veefkind, +34 625283534, mnnbcn@gmail.com

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Creativity

Pro-activity

New Product Development

New Service Development

New Process Development

New Business Development

Organizational Development

competitiveness

> The development of products that embody new knowledge or new ideas.

Research | Discovery | Ideation

Industrialization | Commercialization

Technology

Consumers

Business
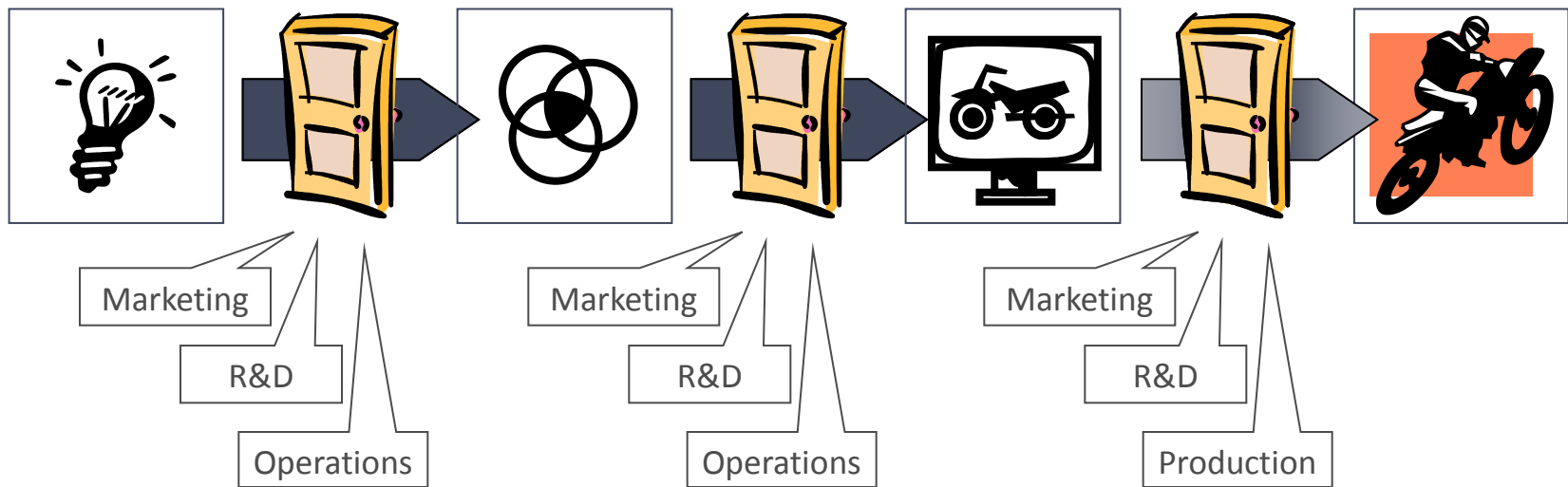
Product develop-ment

Production develop-ment

Market launch

> Creation

> Prototyping / testing / learning

> Risk management

> Material / resource management (economical and ecological)

> Information / quotation / validation
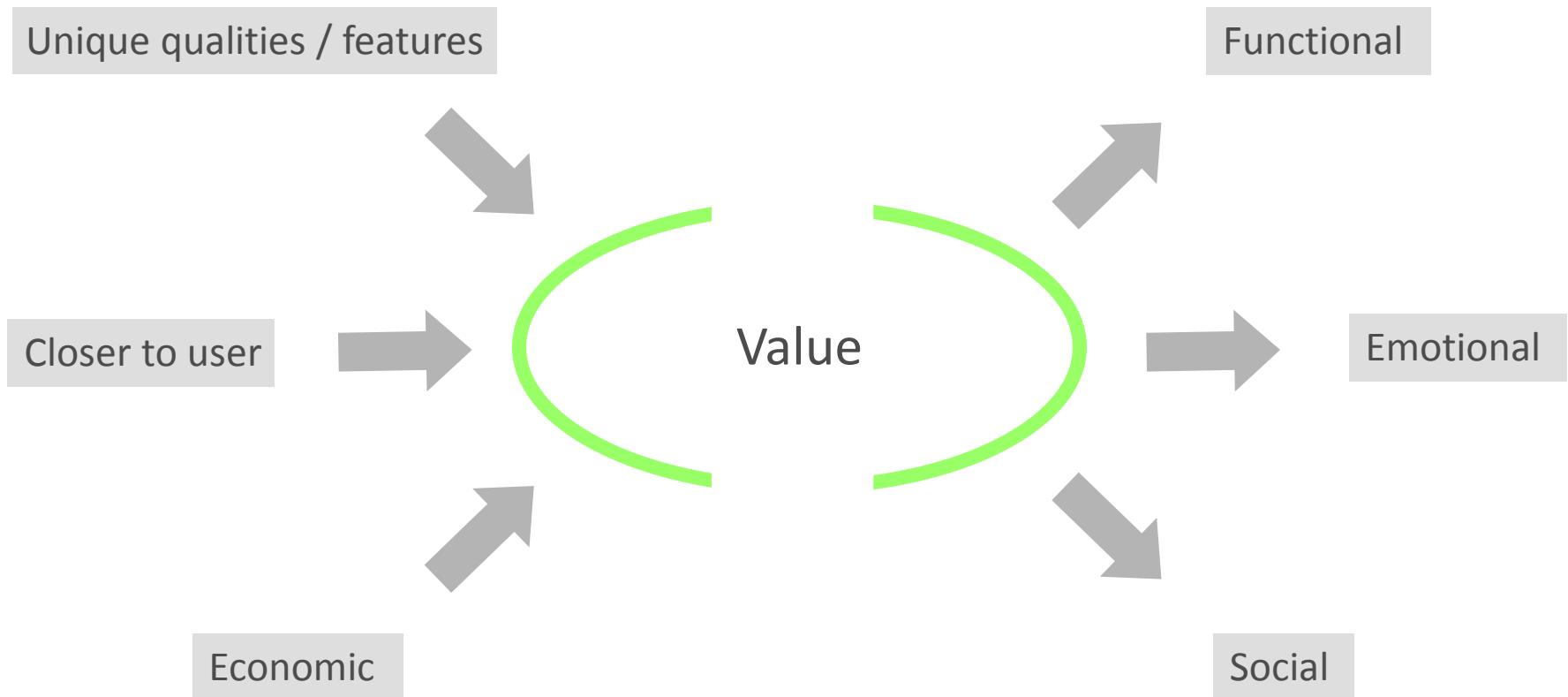
> Selection / specification / detail

> Integration

> Integral

Users / consumers
(Desirability)

Technology
(Feasibility)

Enterprise
(Profitability,
Competiveness)

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> Quality

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> Value

Unique qualities / features		Functional
Closer to user	Value	Emotional
Economic		Social

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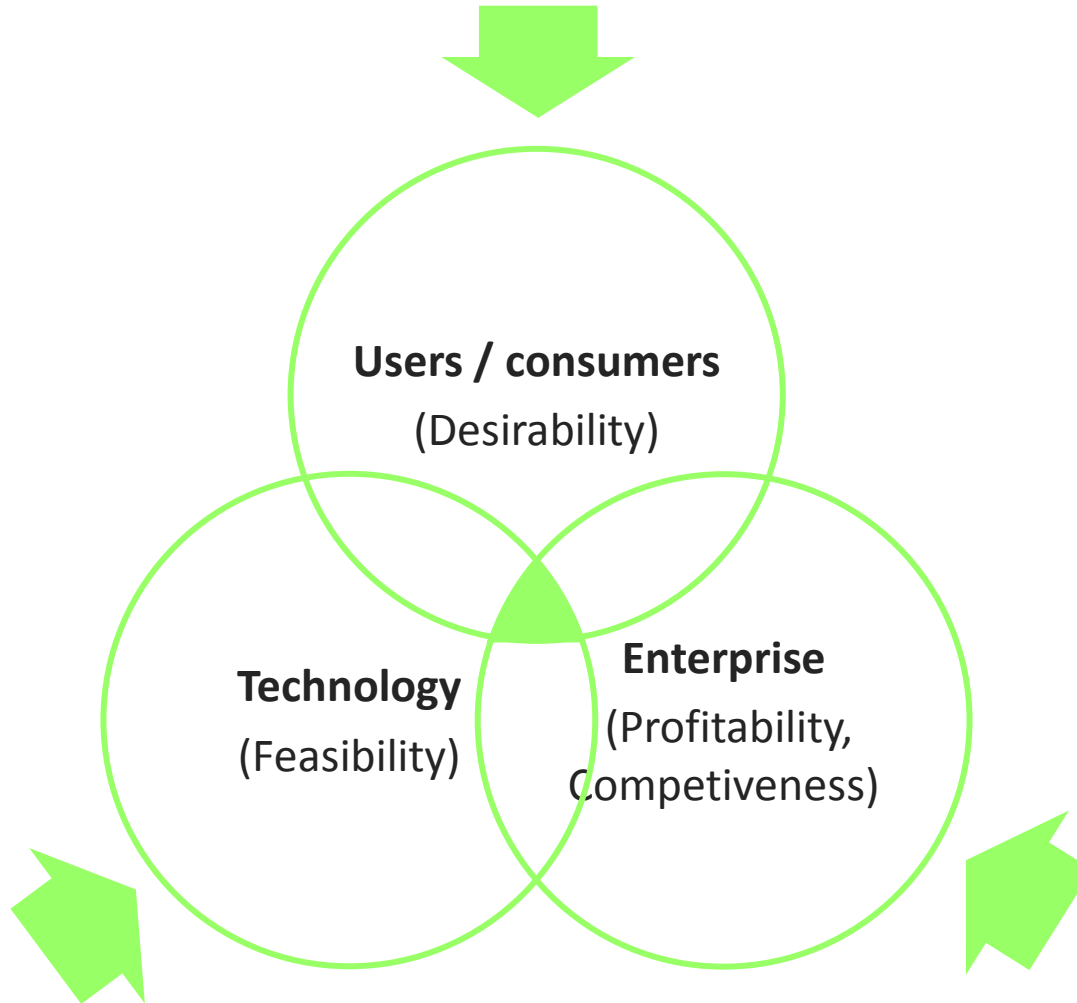
4 principles of Integral Product Design

> Integral -> develop different aspects simultaneously, in a cross-functional setting.

> Life cycle approach -> discover, attack and solve future challenges as early as possible.

> Users centered -> design for all the users and stakeholders in the product's "eco-system".

> Quality / value process -> plan, monitor, validate.

Innovation – what often goes wrong...

> Innovation is mixed up with the development radically new technologies ("this is not for us...")

> Ideas are not shared or developed within the enterprise.

> The management is positive about innovation, but does not provide the necessary framework

> Innovation is limited to one of the enterprise's departments (often R&D) or a single employee

> Disagree about the direction to take; ideas and new knowledge exist, but are not aligned.

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Project description: scope, novelty and goals	Understanding of the "voice of the customer", the business model and technological context	Specification of the new generation of products to be developed	Roadmap of the R&D and market development to be realized

Scoping >	Analysis >	Conceptual design >	Road-mapping >

Scoping
- > Quick-scan of the enterprise
- > Collect, generate and organize ideas for new and improved products
- > Define product development goals

Analysis
- > Product life (cycle) analysis
- > User and client research
- > State of the art and benchmarking studies
- > Need-specification (users, clients, enterprise)

Conceptual design
- > Specification of hardware references, functions and features
- > Conceptual design encasings
- > Hardware (PCB) architecture
- > Specification of the marketing concept
- > Cost-estimation

Road-mapping
- > R&D planning
- > Industrial design planning
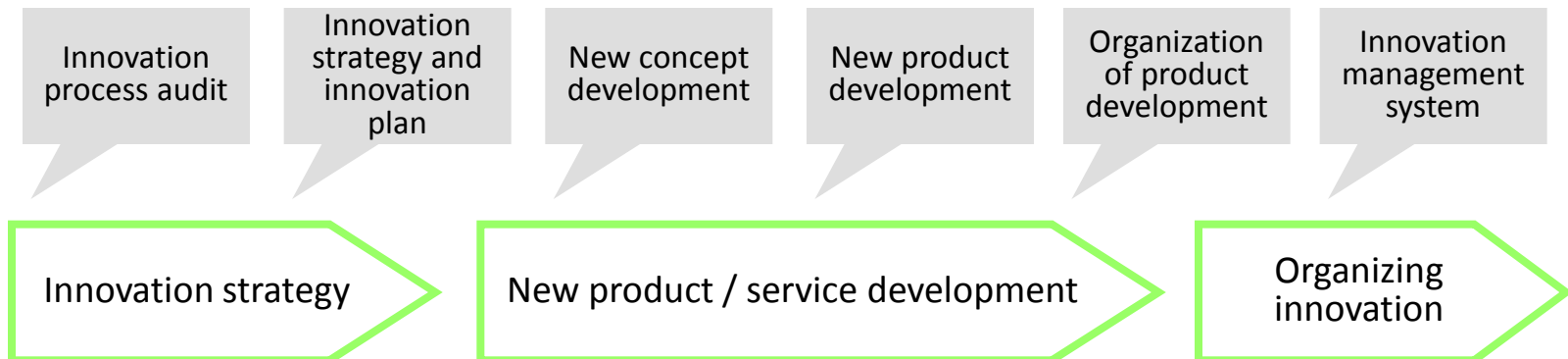- > Prototype planning
- > Marketing planning
- > Financial planning

Itinerario ADÑ

> Programme to foster design and innovation in SMEs in Spain

> Client: Spanish Agency for Design and Innovation (DDI, now part of ENISA)

> 1,3 mln.€ budget, 46 SMEs participated (2009 – 2011).

| Innovation process audit | Innovation strategy and innovation plan | New concept development | New product development | Organization of product development | Innovation management system |

| Innovation strategy | New product / service development | Organizing innovation |

95% of the participants considered the ADÑ programme useful or very useful for their company

> Working in a cross-functional team for ideation and decision making

> Systematic and practical methodology

> User centered approach

> Some companies speak in terms of "before and after"

**IDP project (Delft University of Technology)**

> Teams of 4-6, 4th grade students Industrial Design Engineering

> For (in cooperation with) SMEs and multinationals

> Goal: design of a product that is new for the company

> 5-8 months, tutoring every 1 or 2 weeks, minimal 4 meetings with the company

> The use of methodology is compulsory

> The programme is running for about 30 (!) years now.
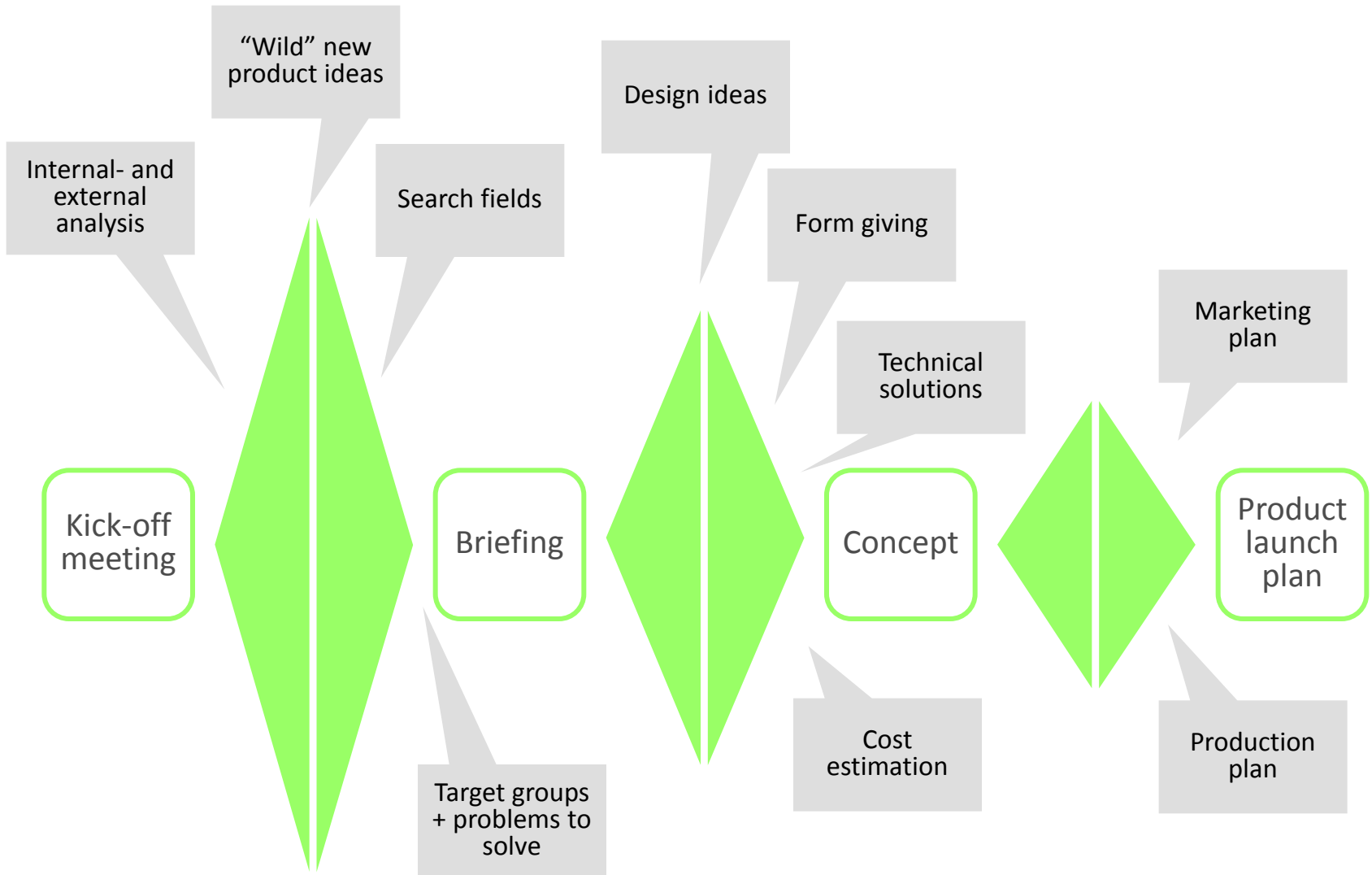
Integral product design projects are a good way for companies to begin innovating

> Fast, tangible intermediate results

> Practical but systematic

> Cross-functional (improves communication)

> User / customer orientation

Product design projects often make the company to make the necessary organization changes in a natural way.

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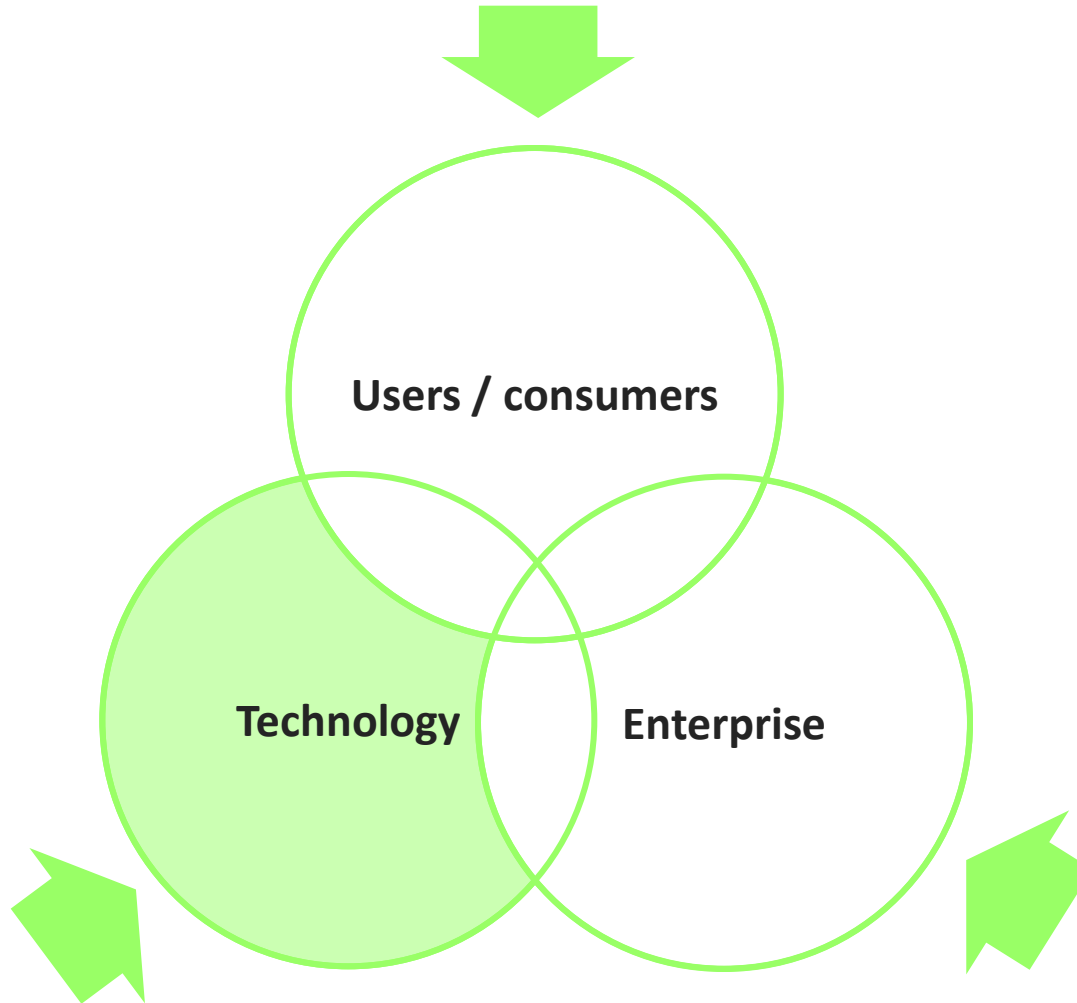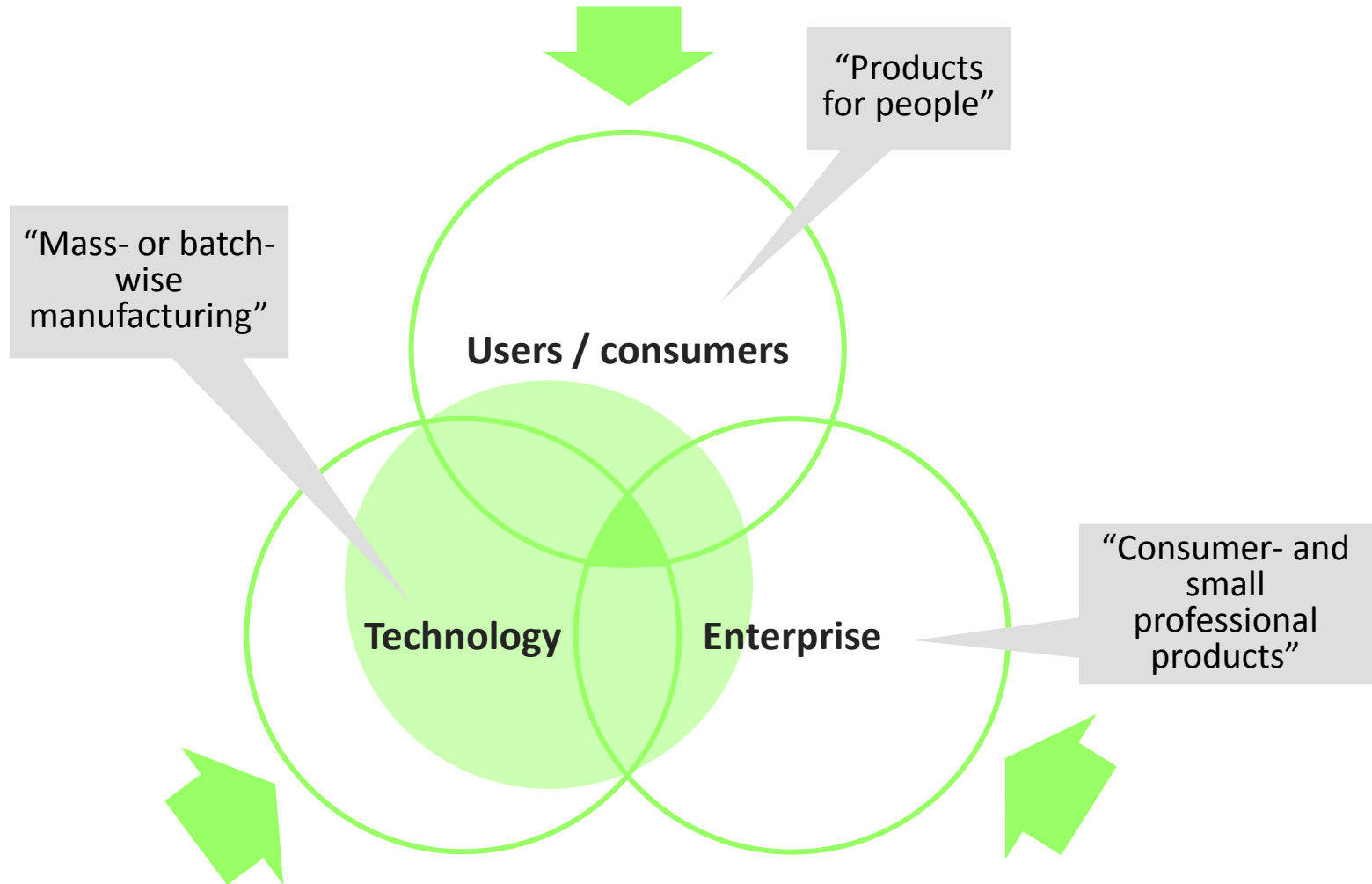
Industrial Design versus Mechanical Engineering (DUT)

> \> + Integral design projects (20%)

> \> + Customer research / marketing

> \> + User interaction and ergonomics

> \> + Form giving (aesthetics)

> \> + Creativity and innovation management

> \> - Engineering courses (focus on mass-production)

Discussion

> *Integral Industrial Design*

> Integral Informatics Design?

> Integral Electronic Design?

> Integral Biomedical Design?

> Integral Materials Design?

> Integral Telecom Design?

> Integral Energy Design?

> Integral Robot Design?

> …

Thank you for you attention!

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