PRODUCT IDENTITY FOOTPRINT: A SET OF TOOLS TO CLARIFY THE FRONT END OF INDUSTRIAL DESIGN PROJECTS IN ORDER TO START AND DEVELOP PRODUCTS THE RIGHT WAY.

Jorge Mauricio Rodríguez Cuevas
RODZ+

Juan Antonio Islas Muñoz
University of Cincinnati
Presenters

Design and innovation consultant, RODZ+

**Education:** Industrial Designer from UNAM, Automotive Design from CCS
**Experience:** 20+ years of academic and industry experience
**Clients:** Ford, Mazda, Audi, Chrysler, among others

Jorge Rodriguez

Head of Transportation Design, University of Cincinnati

**Education:** Industrial designer from UASLP, Master of Design from DAAP
**Experience:** 10 years of academic and industry experience
**Clients:** GM, Chrysler, Crown Lift Trucks, Boeing, P&G, among others.

Juan Antonio Islas Munoz
INTRODUCTION
INTRODUCTION
The Innovation Meta-Map
Abstract

**Observation:** industrial design projects tend to start with the wrong approach

**Consequence:** loss of resources, time, professional relationships
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Proposal: PRODUCT IDENTITY FOOTPRINT

- Design Order and Product Universe Coordinate Chart
- Value Factor Prioritization Tool
- Type of Project
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Consequence: loss of resources, time, professional relationships

Proposal: PRODUCT IDENTITY FOOTPRINT
- Design Order and Product Universe Coordinate Chart
- Value Factor Prioritization Tool
- Type of Project

Goal:
To clarify the Fuzzy Front-end (Vogel, Cagan) by providing a shared and co-developed view by the development team, that can increase the chances for success and decrease uncertainty of project development.
The personalities of the development team
The personalities of the development team

**Project sponsor:** “I know exactly how the new chair should be, because I understand the problems of my company.”

**Marketing team:** “We need to match the competition and follow what our focus groups say. It needs to follow the new trends.”

**Planning team:** “The new chair has match our budgetary and time expectations.”

**Engineering team:** “The new chair needs to be made under our processes, it needs to meet the project plan, and it needs to function properly.”

**Designer team:** “This is the opportunity to make an amazing chair, beyond what chairs do today. Let’s do some innovating!”
Commonly misunderstood concepts in early project development
Commonly misunderstood concepts in early product development

TYPE OF DESIGN INVOLVED

DISCIPLINES | HUMAN RESOURCE EXPERTISE
Commonly misunderstood concepts in early product development

TYPE OF DESIGN INVOLVED
DISCIPLINES | HUMAN RESOURCE EXPERTISE

WHAT NEEDS TO BE PRIORITIZED
DESIGN AND MANUFACTURING STRATEGY
Commonly misunderstood concepts in early product development

TYPE OF DESIGN INVOLVED
DISCIPLINES | HUMAN RESOURCE EXPERTISE

WHAT NEEDS TO BE PRIORITIZED
DESIGN AND MANUFACTURING STRATEGY

TYPE AND SCOPE OF THE PROJECT
A REAL ECONOMIC AND TIME PANORAMA
Theoretical foundation
From art to engineering

Purpose:
PRACTICAL AND ECONOMIC
Effectiveness = efficacy + efficiency

Purpose:
EMOTIONAL AND ECONOMIC
Transmit or provoke
GLOBAL PURPOSE = PRACTICAL + ECONOMIC + EMOTIONAL PURPOSES
DESIGN UNIVERSE

GLOBAL PURPOSE = PRACTICAL + ECONOMIC + EMOTIONAL PURPOSES
DESIGN MULTIVERSE
Utilitarian product universe
Transitional-wholistic product universe
Emotional product universe
DESIGN MULTIVERSE
DESIGN MULTIVERSE
A product’s global purpose
Buchanan’s design orders

ORDER OF COMMUNICATION
Signs Symbols, Images & Print

ORDER OF CONSTRUCTION
Physical Objects

ORDER OF INTERACTION
Services, Experiences, Interfaces & Information

ORDER OF ORGANIZATIONAL
Business, Organizations, Education, Government, Institutions
Buchanan’s design orders

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Design order and product universe coordinate chart

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Design order and product universe coordinate chart
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Design order and product universe coordinate chart

- **Dimension**: Design Order
  - Perception & Interaction Levels
  - Perception & Interaction Levels
- **Rationality**: Utilitarian Universe
  - Practical - Economically Biased
  - Transnational Wholistic Universe
  - Practical, Economically & Emotionally Balanced
  - Emotional Universe
  - Visceral & Symbolic Biased
- **Communication**: Organizational
  - Experience
  - Systemic
  - Smart Interaction
  - 4D
- **Types of Information**
  - Intangible Information
  - Digital Information
  - Physical Information
  - Physical Interaction
  - Non-Visual
  - 2D
  - 3D
Value Factor Prioritization Tool
## Value Factor Prioritization Tool

<table>
<thead>
<tr>
<th>VALUE FACTOR</th>
<th>VALUE SUB-CATEGORY</th>
<th>Low to no priority</th>
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<tbody>
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<tr>
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<td></td>
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<td>Symbolic meaning</td>
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ETHOS = General definition according to the product universe guidelines.

UNDERSTANDING THE INITIAL COMPLEXITY
Identification of the complexity characteristics of the order to which the product or service belongs to.

a) Disciplines involved for project development.
b) Human resource disciplines required.
c) Identification of most suitable strategy for design and manufacturing.
d) Exploration of project scope.
e) Definition of the real vision that the client needs to crystallize the project.
f) An economic scenario that demonstrates where the customer should focus resources.
Type of project: MAJOR ENHANCEMENT

Product to be developed:

Practical purpose:
To provide short-term seating in restaurants, cafes, or events while being easy to store and transport.

Economic purpose:
The minimum amount of manufacturing processes (just sheet metal cutting, tube bending, spot welding, and painting) shows this product is intended to be made as cheaply as possible.

Emotional purpose:
There is no aim to produce any response from the user. Only color could be used as possible.

Value factor prioritization tool:

Design and manufacturing strategy:

Disciplines involved for development:
Industrial design and product engineering

Design and manufacturing strategy:
Definition of the functional product architecture first, characterization under its constraints to satisfy the practical purpose and practical-cost benefits, optimization of parts and components, minimization of manufacturing processes, materials, etc.

Human resource expertise required:
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Economic and time panorama:
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<td>How important is it to allocate resources to make the practical purpose effective?</td>
<td>Practical cost benefit</td>
<td>All resources should be allocated to comply with it at the lowest cost possible.</td>
<td>6</td>
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<td></td>
<td>How important is it to allocate resources to make the emotional purpose effective?</td>
<td>Emotional cost benefit</td>
<td>Not important at all.</td>
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Design and manufacturing strategy:
Definition of the functional product architecture first, characterization under its constraints to satisfy the practical purpose and practical-cost benefits, optimization of parts and components, optimization of manufacturing processes, and finally, the product characterization is developed to match.
**NEW DEVELOPMENT**

Product to be developed

**Practical purpose:** Provide seating sessions for seminars in executive settings. The product needs to fold to be stored in rooms that have transformable settings.

**Economic purpose:** The product should look right up to the executive space standards, work flawlessly every time, and be competitive in terms of market price.

**Emotional purpose:** The chair should look professional and refined while blending with the environment.

---

**Value factor prioritization tool**

**Disciplines involved for development:**
- Industrial Design
- Product Engineering
- Ergonomics
- Materials Engineering

**Human resource expertise required:**
Mechanical engineer specialized in metalworking processes, Polymer Engineer, and Industrial Designer focused on specialized furniture, Specialist in Ergonomics, and Human Factors, Specialist in Textiles.

**Economic and time panorama:**
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**NEW DEVELOPMENT**

**Flux chair**

**Practical purpose:**
Provide seating in the home environment and fold flat for storage.

**Economic purpose:**
While the chair is made with simple manufacturing, processes, and materials, the bulk of the price comes from its “high design”, thus, the emotional cost benefit is more important.

**Emotional purpose:**
The chair is also a piece of decoration. It should produce joy when observed. It should be a talking point in the home.

---

**Design order and product universe coordinate chart**

**Disciplines involved for development:**
Industrial Design and / or artist.

**Human resource expertise required:**
Industrial designer with knowledge in patterns and descriptive geometry or specialist in origami.

**Characterization first, functional product architecture is developed to match.**

**Economic and time pantheon:**
According to the above, once the real objectives of the project have been defined conclusively, it would already be possible to establish an estimated amount of economic resources for the development of the project draft.
Conclusions

The Product Identity Footprint helps understand:

**TYPE OF DESIGN INVOLVED**
**DISCIPLINES | HUMAN RESOURCE EXPERTISE**

**WHAT NEEDS TO BE PRIORITIZED**
**DESIGN AND MANUFACTURING STRATEGY**

**TYPE AND SCOPE OF THE PROJECT**
**A REAL ECONOMIC AND TIME PANORAMA**
Conclusions

Potential additions:

MARKET ANALYSIS TOOL
OPPORTUNITY GAP OR SATURATED MARKET

DESired ATTRIBUTES OF DEVELOPMENT TEAM TOOL
BEYOND THE REQUIRED DISCIPLINES

Limitation:

EXPERIENCE REQUIRED TO LEAD PROJECTS
BUT IT CAN STILL SHORTEN THE LEARNING CURVE
Toluca, Mexico / Cincinnati, Ohio

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