

Technology/Device/Product/Solution

Understanding the Difference & Acting on it.

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Who The Hell Am I?

- 1970-1980 Lecturer in CS Dept - Edinburgh
 - Operating Systems, Compilers, Communications
- 1980-1984 BNOC -> Britoil - Glasgow
 - Infrastructure architect (off-shore and on-shore)
- 1984-2001 Soft-Switch -> Lotus -> IBM
 - Soft-Switch (Clydebank & Philadelphia, PA)
 - Founded Soft-Switch UK (1984-1986)
 - 2nd level development management (1986-1988)
 - Chief Architect -> Chief scientist (1988-1993)
 - Lotus/IBM (Cambridge, MA)
 - Chief Messaging Architect (1993-1998)
 - Chief Technology Officer (1998-2001)
 - Lotus Fellow (1 of 4) / IBM Fellow (1 of 151)

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They're Different

- Technology
- Device
- Product
- Solution

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Solution

- The totality of what a customer buys and owns.
 - Product/s
 - +
 - Service/s
 - Training
 - Assistance (product support)
 - Maintenance
 - Customization
 - Satisfy a prospect's need/s
 - Resolve a prospect's pain.
 - Therefore, what a vendor must sell.

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Product

- The totality of what a company markets.
 - Device/s
 - +
 - Intangibles
 - Brand
 - Image
 - Addressed via:
 - Messages
 - Collaterals

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Device

- Hardware and/or Software
 - That performs a set of functions.
 - That has a set of features.
 - That exploits one or more technologies.
 - That may be an assembly of (sub-)devices.

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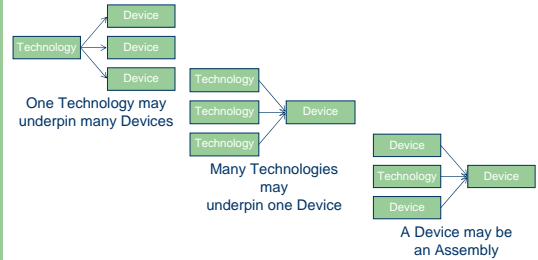
Technology

- That which makes a device operate
 - May already exist
 - May need to be acquired
 - May be embedded in a purchasable sub-device
 - May need to be invented
 - And protected

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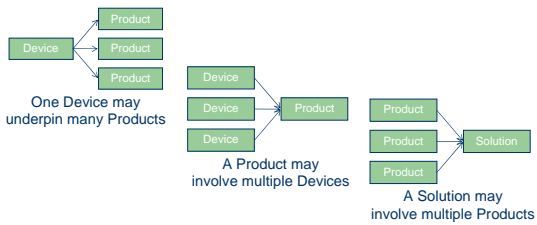
Technology ↔ Device



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Device ↔ Product ↔ Solution



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Some Examples

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Volkswagen & Audi

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Two Distinct Sets of Products

- Separate brands
 - Separate messages
 - Separate dealerships
- Different images
 - Different looks
 - Different price points (Audi = VW + 40-60%)

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Largely Common Devices

- Very similar under the covers
 - Components
 - Interior elements, drive trains, engines.
 - Platforms
 - VW Polo, Audi A3.
 - VW Golf, VW Jetta, Audi A4, Audi TT
 - VW Passat, Audi A6
- So what's different.
 - Body panels - Look (Audi = sleek, VW = functional)
 - Availability of some options

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Apple iPod

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Product

- Integrated set of devices
 - iPod (range of models) which requires
 - iTunes (Mac & Windows) which utilizes
 - iTunes Store
- Image
 - Apple
 - Cool
 - By design
 - Easy to use

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Devices

- iPod
 - Large storage capacity
 - > 20 G bytes =>
 - Sufficiently long play time
 - Low power consumption
 - Intuitive user interface
 - Not a barrier to use
 - Small footprint
 - Fit in a pocket
 - Conforms to the brand image

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Device

- iTunes
 - Manages the track library
 - On and off the iPod
 - Enforces Digital Rights Management (DMR)
 - Two sources of tracks
 - Ripped from CDs
 - Bought from the iTunes Store
- iTunes Store
 - Tracks at an appropriate price point
 - 45s for the 21st century

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Technology

- Large storage capacity
 - New generation disk drives
 - High capacity
 - Small foot-print
 - Low power consumption
 - Low price point
 - Lock up the supply
 - buy 100% of the production
- High quality audio
 - Source custom, low power, chips

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Technology - continued

- Sufficient power
 - Piggy back on cell phone and PDA technology
- Digital Rights Management (DMR) solution
 - Necessary for content owner's buy-in.

Google Search

Your Turn

Solution/s

Product/s

Device/s

Technology/s

From Market Requirements to Product Requirements & Beyond

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Technology Firms

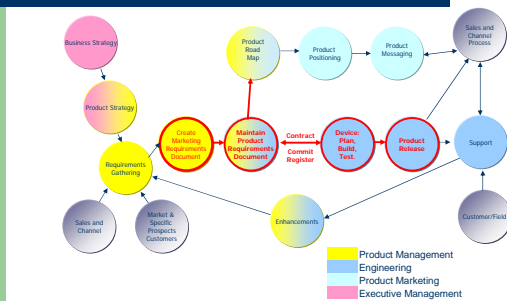
- Often focus on technology, when they should focus on product.
- Often confuse device and product
 - Device is what you build
 - Product is what you market
 - They are linked, but not the same.
- Need to get the Device/Product synergy right!

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Product Process

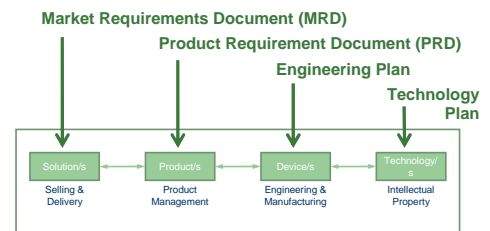


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Resulting Documents

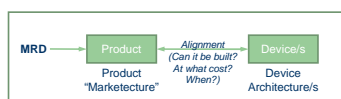


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(MRD ↔ Product ↔ Device) Alignment



- Conversation must be fact (data) based
 - Not a clash of opinions
- Outcome will be
 - An agreed Product Requirements Document (PRD)
 - An agreed Product "Marketecture"
- Which will drive
 - Device/s Plan
 - Device/s Architecture

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From MRD to PRD

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MRD is a Big Animal Picture

- Some market requirements
 - Need to be broken down into more granular pieces
 - Especially where sub-requirements differ
 - In do-ability (can they be built?)
 - In complexity
 - In required technology
 - ...
- No new requirements
 - From Engineering, Sales, etc.

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Requirements/Sub-Requirements

Classify by

- Priority – From MRD
- Low Hanging Fruit – Small amount of code in <= 1.5 module/s
Relatively easy to (unit) test and debug
- Complex – Large amount of code and/or in > 1.5 modules
Relatively difficult/complex to (system) test & debug
Varies from moderate to very
- Needs Technology – Requires IP to be created, licensed, etc.
- Impossible – ...
- Dependencies – Implementation is dependent on meeting another requirement/sub-requirement

Sort by

Requirement, Priority, Difficulty, ...

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Requirements Ordered by Number

Feature	Priority	Low Hanging Fruit	Complex	Needs Technology	Impossible	Dependencies
1.1	Must Have		Very			
1.2	Must Have	X				1.1
1.3	Must Have			Research reqd.		
2.1	Nice 2 Have	X				
2.2	Nice 2 Have				X	
3.	Nice 2 Have		Moderate	Can License		
4.	Must Have		Very or Can buy			
5.1	Must Have		Moderate			4
5.2	Must Have	X				5.1 -> 4
6.	Must Have				X	

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Requirements Ordered by Priority

Feature	Priority	Low Hanging Fruit	Complex	Needs Technology	Impossible	Dependencies
1.1	Must Have		Very			
1.2	Must Have	X				1.1
1.3	Must Have			Research reqd.		
4.	Must Have		Very or Can buy			
5.1	Must Have		Moderate			4
5.2	Must Have	X				5.1 -> 4
6.	Must Have				X	
2.1	Nice 2 Have	X				
2.2	Nice 2 Have				X	
3.	Nice 2 Have		Moderate	Can License		

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Requirements Ordered by Difficulty

Feature	Priority	Low Hanging Fruit	Complex	Needs Technology	Impossible	Dependencies
2.1	Nice 2 Have	X				
1.2	Must Have	X				1.1
5.2	Must Have	X				5.1 -> 4
5.1	Must Have		Moderate			4
3.	Nice 2 Have		Moderate	Can License		
1.1	Must Have		Very			
4.	Must Have		Very or Can buy			
1.3	Must Have			Research reqd.		
6.	Must Have				X	
2.2	Nice 2 Have				X	

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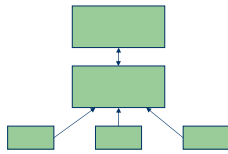
Writing the PRD

- Standard format
- Ordered and prioritized list of agreed product requirements
- May be more than one for a release
 - More than one product required for a solution

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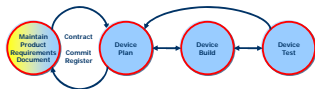
Developing the "Marketecture"



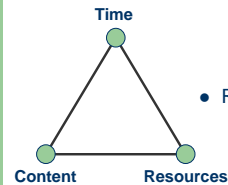
- Must be consistent with the device architecture.
- But much, much, simpler
 - Capture the key points
 - Tell no lies

From PRD to Device

From Product to Device



Golden Rule



- Time & Resources are not fungible.
 - "The Mythical Man Month"
 - How to make a late project even later?
 - Add more people!
- Resources are not fungible.
 - Engineers differ greatly in
 - Creativity
 - Speed
 - Quality
- Have to build with what you've got.

From Device to Product

Three Approaches to Product Release

Against pre-defined release criteria?

- Bug count < X
- Find → Fix ratio < Y
- Performance > Z
- Marketing & Field are ready

- Date driven
 - Content dropped, if necessary
- Content driven
 - Date allowed to slip, if necessary
- Hybrid
 - Content dropped & date allowed to slip, if necessary

What Does this All Mean?

- An MRD for a release is a static document
- A PRD for a release is a dynamic document
 - Change shouldn't be easy
 - Change needs to be a collective decision
 - Changes have impact
 - Lack of changes also have impact
- Technology/Device/Product/Solution
 - They are different!