

Begrepet "Disruptive Technology"

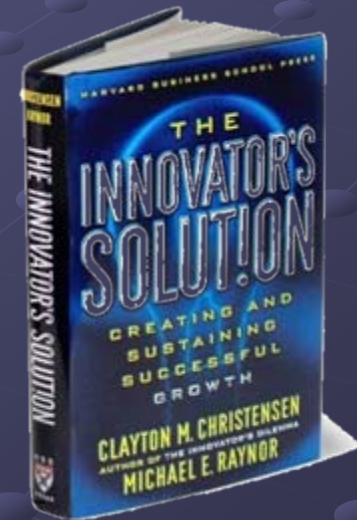
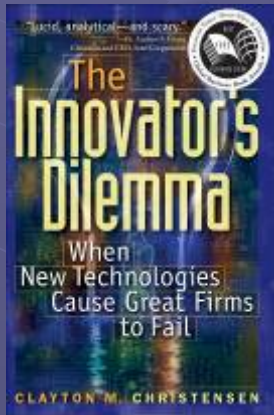
Gründerskolen

Erling Maartmann-Moe

Clayton M. Christensen

- Professor Harvard Business School
- The Innovator's dilemma: "When new technologies cause great firms to fail" (1997)
- "Meeting the Challenge of Disruptive Change" (HBR 2000)
- Hva skjer med ledende industrier når ny teknologi endrer konkurransen?
- Omfattende analyse med eksempler fra IT, stål-industri, medisin etc.
- 2004: The Innovator's solution – Creating and sustaining successful growth

- *The Innovator's Dilemma*
- *The Innovator's Solution*
- *Seeing What's Next*



What is innovation?

The act of introducing something new.
~ American Heritage Dictionary

A new idea, method or device.
~ Merriam-Webster Online

Change that creates a new dimension of performance.
~ Peter Drucker

The successful exploitation of new ideas.
~ Dept of Trade and Industry, UK



Innovation is something *different* that has *impact*
The often unspoken goal of innovation is to *solve a problem*

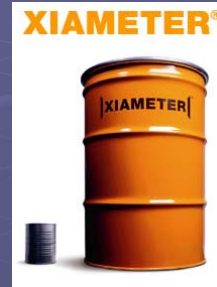
What innovation is not

- Common misperceptions about innovation:
 - Innovation is all about brand new technology
 - Innovation is what inventors do
 - Innovation only concerns products
 - Innovation is important only when it results in a huge, breakthrough business
- The reality:
 - Innovation happens every day, in large and small ways, and takes many forms
 - Innovation on any scale can help a company meet its growth objective

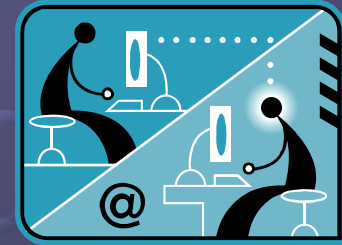
Innovation comes in many forms



New product or
service



New business
model



Enabling
technology



Packaging



Branding/
Marketing

Six Sigma

Internal process

Utgangspunkt for analyse

- Ledende aktør - sterk i sitt marked
- Profesjonelle prosesser, sterk kultur
- Tuning, "tinkering"
- Hovedmarked eroderes av ny teknologi..
- ..men nye markeder ikke store nok til å erstatte bortfall av inntekter, selv om rask vekst
- Organisasjonen ikke "skrudd for" å håndtere små, nye markeder

Ledende bedrifter overlever ikke teknologisk endring

- De ser endringen komme, men klarer ikke å håndtere den på en god måte
- Ikke en av de ledende bedriftene innen minimaskiner klarte å beholde ledelsen da PCen vant fram
 - DEC
 - Norsk Data
 - Sperry
 - Prime
 - Wang
 - Nixdorf

Mangler ikke dyktighet...

- Most big companies have talented managers and specialists, strong product portfolios, first-rate technological know-how, and deep pockets.
- What managers lack is the habit of thinking about their organisations capabilities as carefully as they think about individual people's capabilities.

...men

- Forstår ikke *typen* endring....
- ..og forsøker å håndtere dem innen rammen av eksisterende organisasjon og prosesser

The Innovator's Dilemma

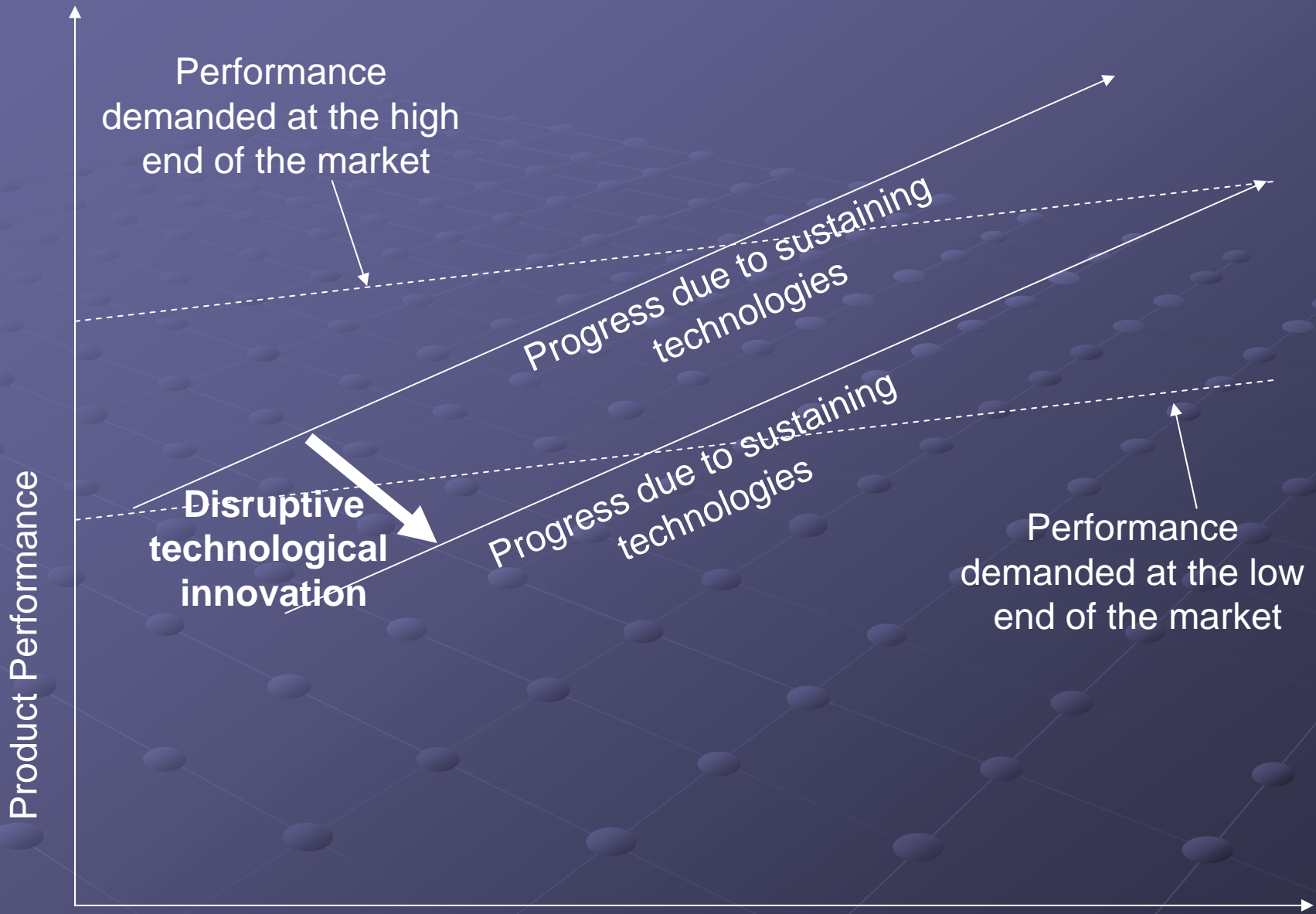
- To typer innovasjon:
- Sustaining innovations
 - Make products better for mainstream customer
 - Existing value network
- Disruptive innovations
 - Cheaper, simpler, smaller, fringe market
 - Create entirely new markets
 - Potential to change entire market
- Etablerte selskaper flinke på de første, har problemer med de siste
- Utfordring for de etablerte, mulighet for gründere!

Sustaining innovations

- Adresserer neste generasjons behov for eksisterende avanserte kunder
- Raskere, mer nøyaktige, billigere produktprosesser
- Biler

Disruptive Innovations

- Nytt produkt eller tjeneste, ofte dårligere enn eksisterende teknologi ved introduksjonen!
- Digital Video
 - TV-produksjon
- Desktop publishing
 - Typografer
- PC
 - Digital Equipment Corporation
- FINN
 - Annonsemarkedet
- Insulin
 - Lilly: Humulin
 - Novo: Insulin-penn



Performance demanded at the high end of the market

Progress due to sustaining technologies

Disruptive technological innovation

Progress due to sustaining technologies

Performance demanded at the low end of the market

Decades of disruptive innovation



1870 → 1950

What connects these innovations?

- ... start with “good enough” performance along traditional dimensions
- ... new benefits such as simplicity, convenience or low prices
- ... appeal to “overshot” customers or “nonconsumers”
- ... often utilize “low cost” or “start small” business models
- ... take advantage of competitive weaknesses and blind spots



1960 → today

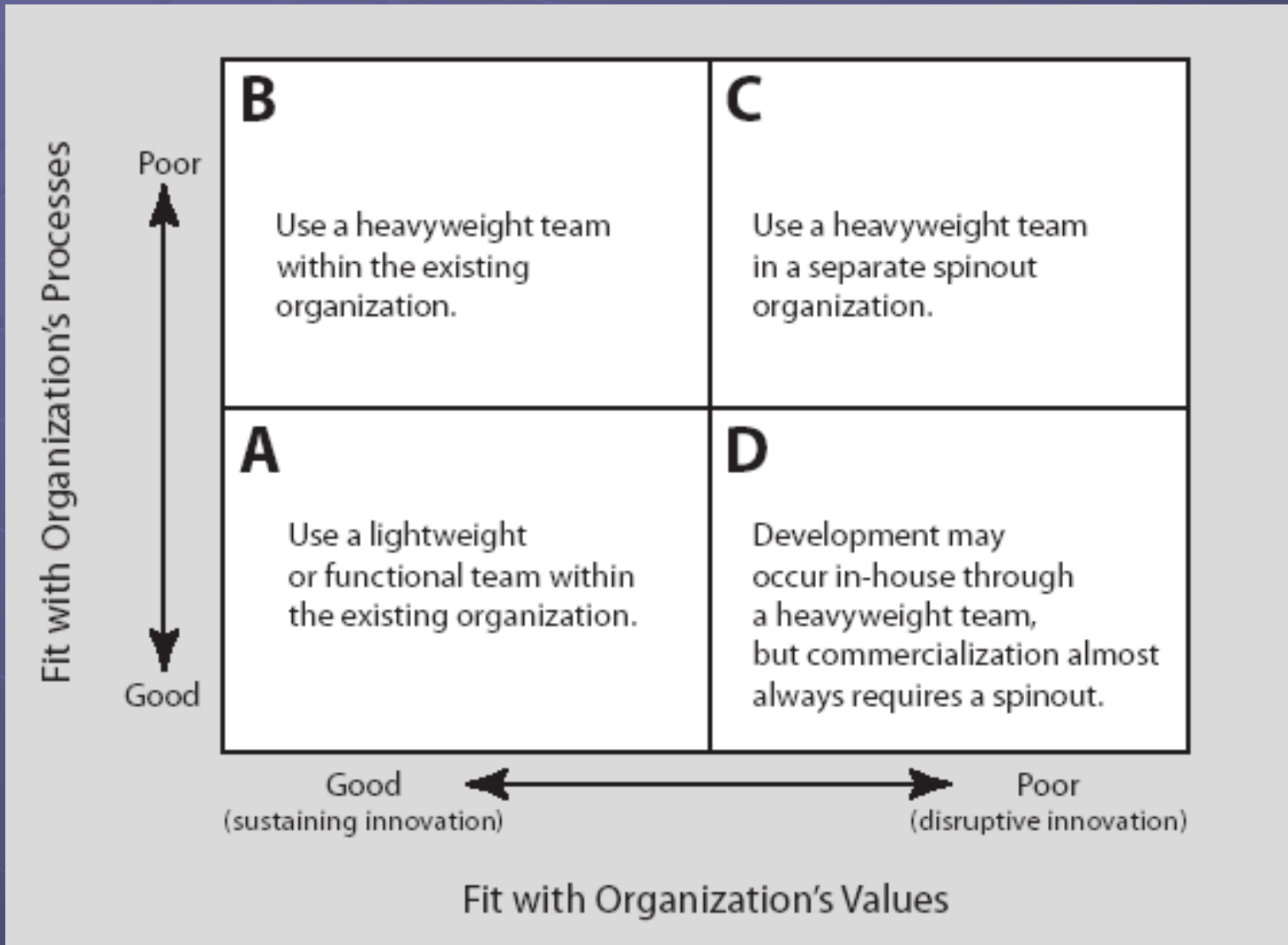
Vanskelig å ta stilling

- Ikke alle nye teknologier vinner fram
 - Minitel
 - Videotelefoni
- Hvordan vurdere et (foreløpig) ikke-eksisterende marked?
- Vil nye eller etablerte aktører ta fordel?
 - "First mover advantage" ?
 - Kompletterende/konkurrerende
- Timing: Når er det riktig å gå inn?

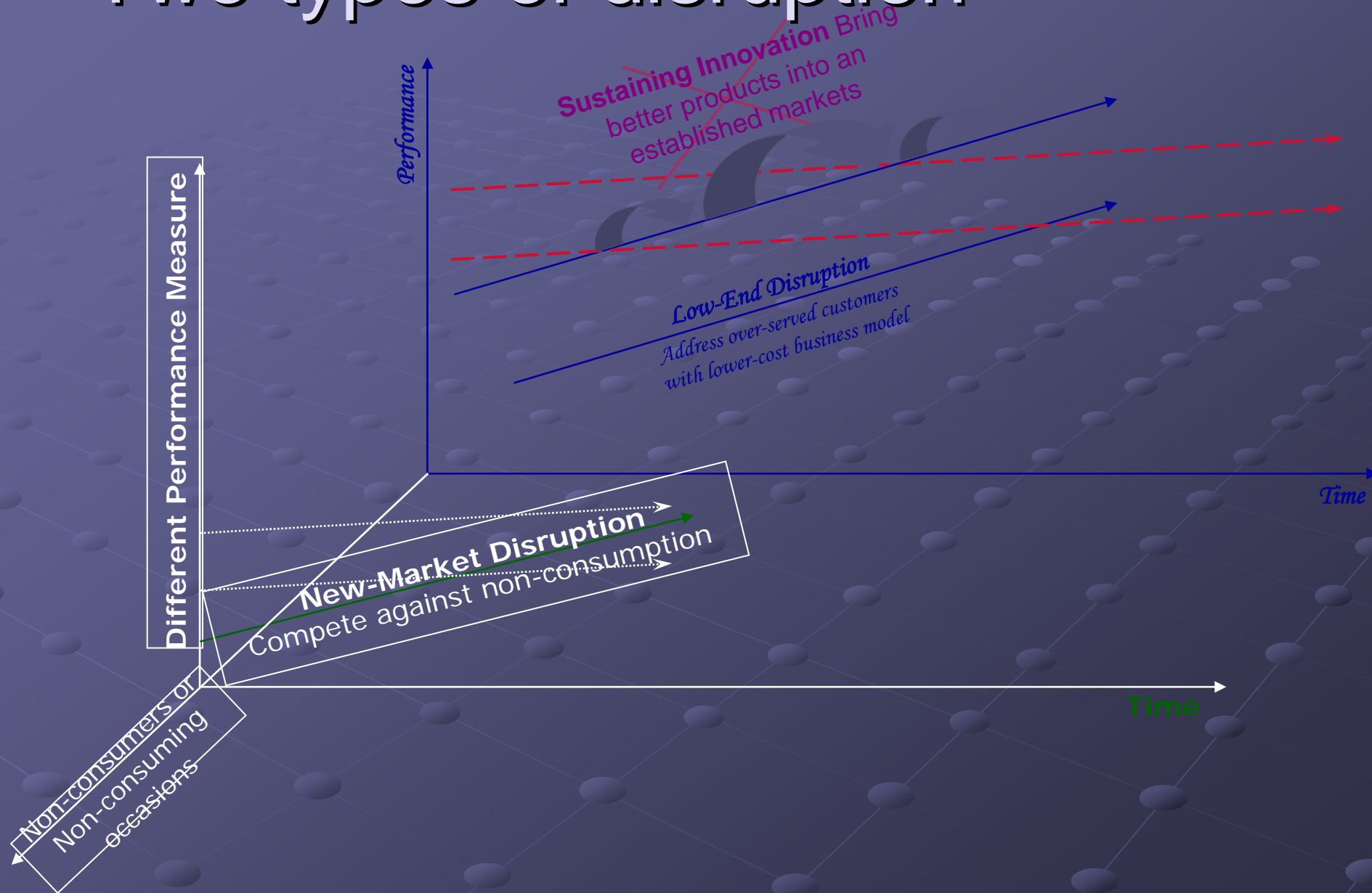
Disruptive vanskelig for etablerte

- "When new technologies cause great firms to fail"
- Vanskelig å bygge rutiner for å håndtere slik innovasjon
- "Lytt til markedet" gir feil informasjon
- For mye overhead til å betjene små markeder
- De minst profitable kundene ønsker den nye teknologien, dvs. ikke mer profitt, men lavere marginer
- Må tørre å konkurrere med seg selv

Strategivalg for etablerte aktører

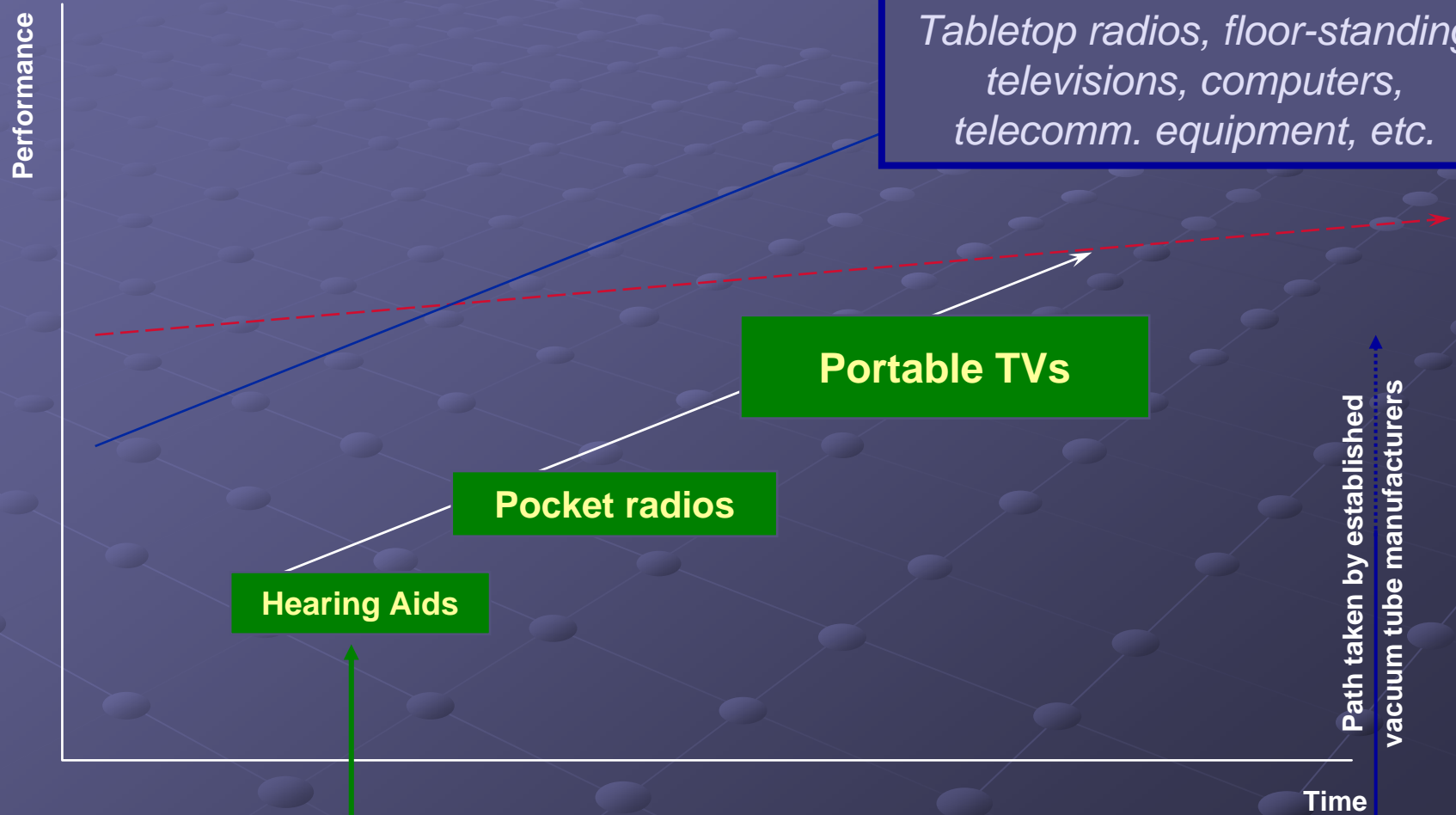


Two types of disruption



Non-consumers are the ideal target market

Major Established Electronics Markets:
Tabletop radios, floor-standing televisions, computers, telecomm. equipment, etc.



Disruptive innovation: transistors vs. vacuum tubes

Typiske utviklingsfaser for disruptive innovasjoner

1. Oppfinnelse og teknologiutvikling ofte gjort i etablert firma
2. Markedsavdeling sjekker mot ledende kunder som viser liten interesse
3. Etablert firma intensiverer innsats på eksisterende teknologi
4. Nye firmaer etableres og introduserer teknologi i markedet, og marked finnes ved prøving og feiling
5. Nye aktører beveger seg up-market
6. Etablerte kaster seg motvillig på det nye for å forsvare kundebasen sin

Putting the principles in practice

Generate and prioritize ideas

- ✓ Identify the right “job to be done”
- ✓ Prioritize important, unsatisfied jobs

Shape solutions

- ✓ Determine what can be “good enough”
- ✓ Seek different ways to get the job done

Pilot & Commercialize

- ✓ Follow an emergent strategy
- ✓ Start simple, cheap and fast
- ✓ Dig deep for assumptions and risks

Find the 'job to be done'



Quarter inch drill



Quarter inch hole

Solution



Problem

Demographics



Circumstances

What?



Why?

Sample questions to ask to discover jobs

- What is the problem you are facing?
- Why do you care about solving it?
- How frequently do you encounter this problem?
- What is the process you use to solve that problem?
- What alternatives do you consider when going through this process?
- Why do you select the option you select?
- What do you like about the option?
- What don't you like?
- What frustrates you when you are trying to solve this problem?

Useful for customers *and* consumers

Prioritize important, unsatisfied jobs



=



Remember that quality is relative

Customer is willing to give this up...

In order to get this...

Picture quality



Memories

Customization and service



Convenience, low cost

What is “good enough”?

Overshooting: You can be too good

Do we need to be better here?



Call quality

Reliability

Power

Convenience

Pin drop

99.999%

Survives a blizzard...

The home

Can you hear me now?

80%

... doesn't

Anywhere

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Find creative ways to test assumptions

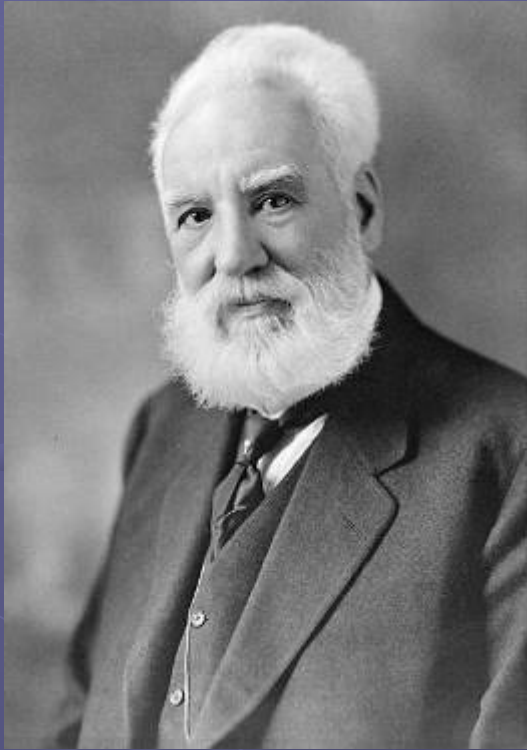
Keep it simple, keep it cheap

- Create a rapid, “good enough” prototype
- Talk to/observe customers and consumers
- Talk to internal resources
- Look to your history
- Google the idea
- Talk to experts in the field
- Conduct a focus group
- Scan Internet customer boards
- Perform secondary research
- Identify early milestones
- Launch in a test market
- Research patents

A **prototype** is anything that helps communicate the idea: e.g. mock-ups, models, simulations, role playing, experiences.

Prototyping **early and often** will save loads of time and effort. The goal is to get fast, insightful customer or end user feedback.

The ability to see opportunity depends on where you sit



Alexander Graham Bell



“The ‘telephone’ has too many short-comings to be seriously considered as a means of communication. The device is inherently of no value to us.”

— *Western Union internal memo, 1876*

The innovation path is not always clear



“In the early 1980s AT&T asked McKinsey to estimate how many cellular phones would be in use in the world at the turn of the century. The consultancy ... concluded that the total market would be about 900,000. At the time this persuaded AT&T to pull out of the market.”

— *The Economist*, 1999

Getting new growth right is hard

Trap 1: Failure to allocate resources



“I don’t really like hard disks--they’re not Sony technology. As an engineer, they’re not interesting.”



“There is no reason why anyone would want a personal computer in their home.”

Trap 2: Cram efforts into established models



Kodak DCS-100 (1990): \$30,000



“All the news that's fit to pixel.”