



Quality in Japanese R&D

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3 most important issues in Japan

- Long term thinking
 - 10, 20 or even 50 years ahead
- Customer focus
 - the customer is the king
- Competence development
 - continuous educational system
 - job rotation



The "Nemawashi" system

- Nemawashi
 - to anchor decisions
 - formal and informal networks used
- it takes a long time to convince everybody
- it takes a little time to implement decisions



Mgmt principles at SONY

- "Trying out new things is risky, but our policy is 'dont care if you make a mistake', but dont do the same mistake again. In this way we encourage new approaches"

Aki Morita
former president SONY Corp.



Manging the R&D process at SONY

- "The critical factor of SONY R&D mgmt is to ensure that reseachers, dev.engineers, and prod.group mgrs to meet as often as possible so that both competencies and technologies can spread throughout the organization"

Dr Kikuchi
former R&D director of SONY



Other mgmt principles of SONY

- Trial-and-Error
- Curiosity
- Dedication
- Flexibility
- Closing down projects
- Transfer of meta-knowledge



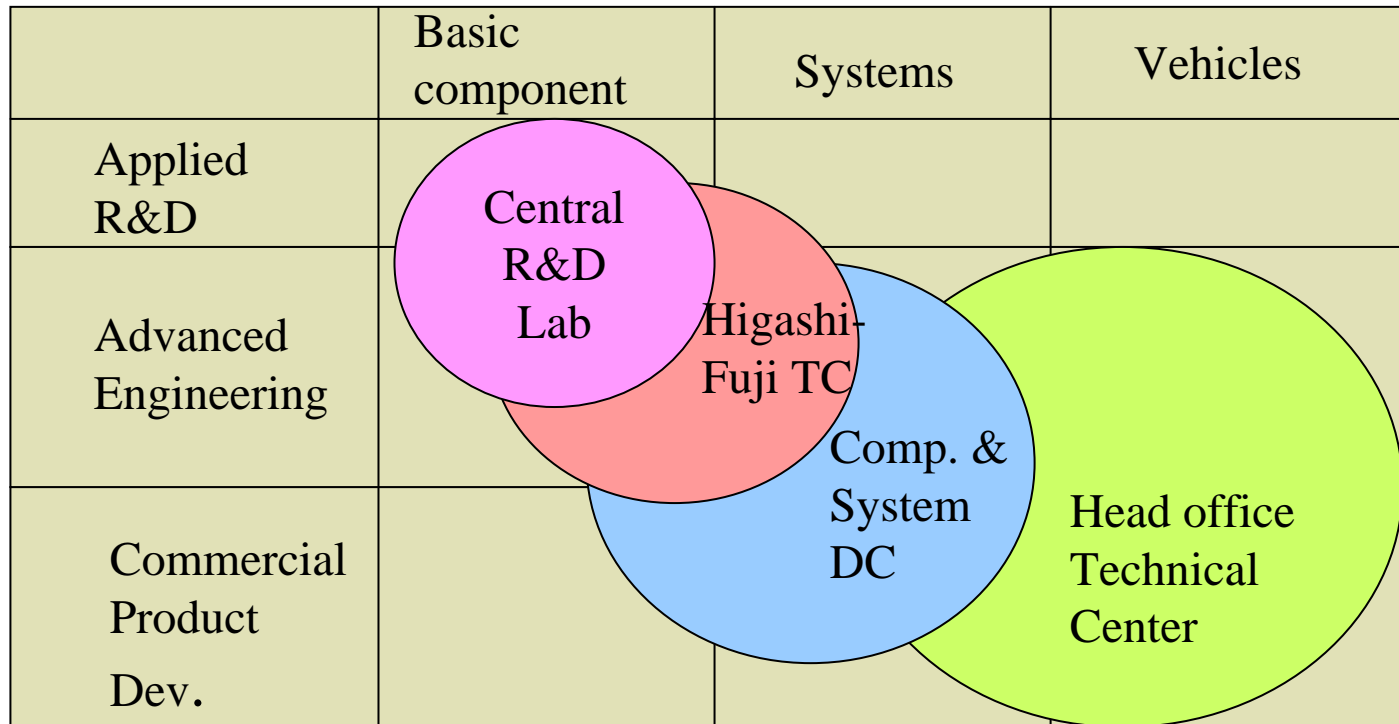
SONY Interaction process

- Research Report Meetings
 - every week
- Open House Meetings
 - every year
- Sony Technology Exchange Forums
 - every year
- Technology Symposia

Canons product dev. philosophy

- "Survival of the fittest"
 - Internal competition among project team leaders to attract dev. engineers.
- Internal marketing driven by commercial visions from top management
- No direct control but a hope for successful projects

The Toyota linked R&D structure





Working with Visions in Toyota

- Visions penetrate the entire dev. Process
 - visions are clear
- Overall goals are transformed into dev. efforts
- Interactive and flexibel coordination
- All are involved
 - dev.engineers
 - production
 - marketing etc.
- Suggestions 1991
 - 2.076.077 suggestions came from 6800 Q-Circles
 - (35.6/employee)
 - 98% were adopted



How to find the way?

- "To lead a project is similar to climb a mountain. First you must decide which mountain to climb. Defining the mountain is thus to predict the market need rather than its push.

Dr. Naoya Yoda
Exec. Advisor Kansai Research Inst.



Information and Tech. Transfer

- Nomunication

- Nominasu= "To drink"
- To drink and communicate ease the information transfer between people in Japan.

- Very common to drink beer/whiskey after hours in Japanese org.



The 5-S System

- Seiri have things in right order
- Seiton to do Seiri
- Seiketsu clean
- Seiso to do Seiketsu
- Shitsuke discipline



Collaboration in R&D

- MITI focus on key-technology areas vital to Japan based on strategic consensus among many groups.
- Collaborative R&D programs aims at developing knowledge to compete.
 - Resources are put in hands of best experts who collaborate 60% of their time and competes the other 40 %.



Support systems for SME's

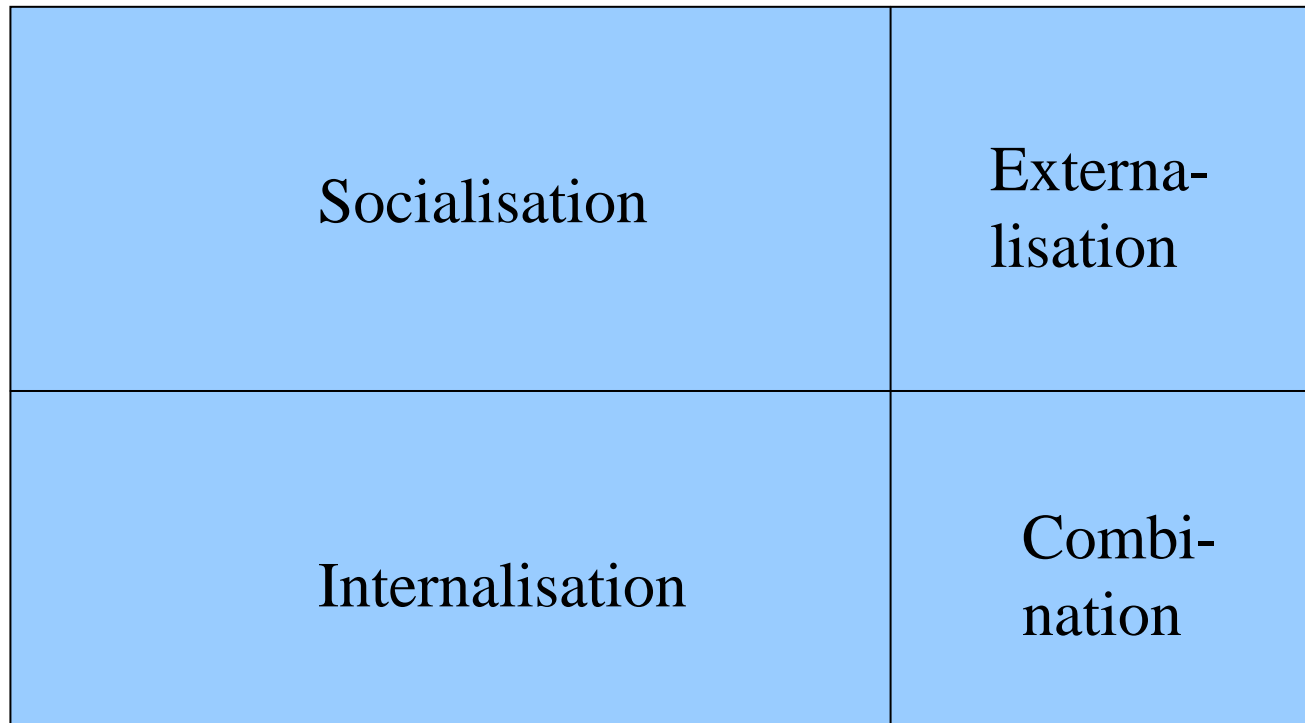
- Local community support
 - Development Centers
 - SME collaborative fora
 - Marketing support
- Local government support
 - Professor visiting programs
 - Special VC-programs



Knowledge theory of organisations

- Socialization
 - creating knowledge by sharing experience
- Externalization
 - formulation of knowledge in metaphors, concepts, hypotheses, models
- Internalization
 - knowledge become accessible to users
- Combination
 - methodic systematisation and combination of info.

Knowledge transfer in Japan



Knowledge transfer in USA

Sociali- sation	Externalization
Interna- lisation	Combination



Knowledge creation in Japan

- Group based
- Tacit knowledge-oriented
- Emphasis on experience
- Ambiguous organisational intention
- Creative chaos through overlapping tasks
- Redundancy of information



Knowledge creation in west

- Individual-based
- Explicit knowledge-based
- Emphasis on analysis
- Clear organisational intention
- Creative chaos through individual differences
- Less redundancy of information



The 3I's now changing Japan

- IT-implementation

- A real trend in applying IT everywhere

- Internationalisation

- More Japanese comp. abroad and vice versa.

- Individualisation

- Flexibility on the labor market
- focus on individual behaviour



Implications of QA on Mgmt

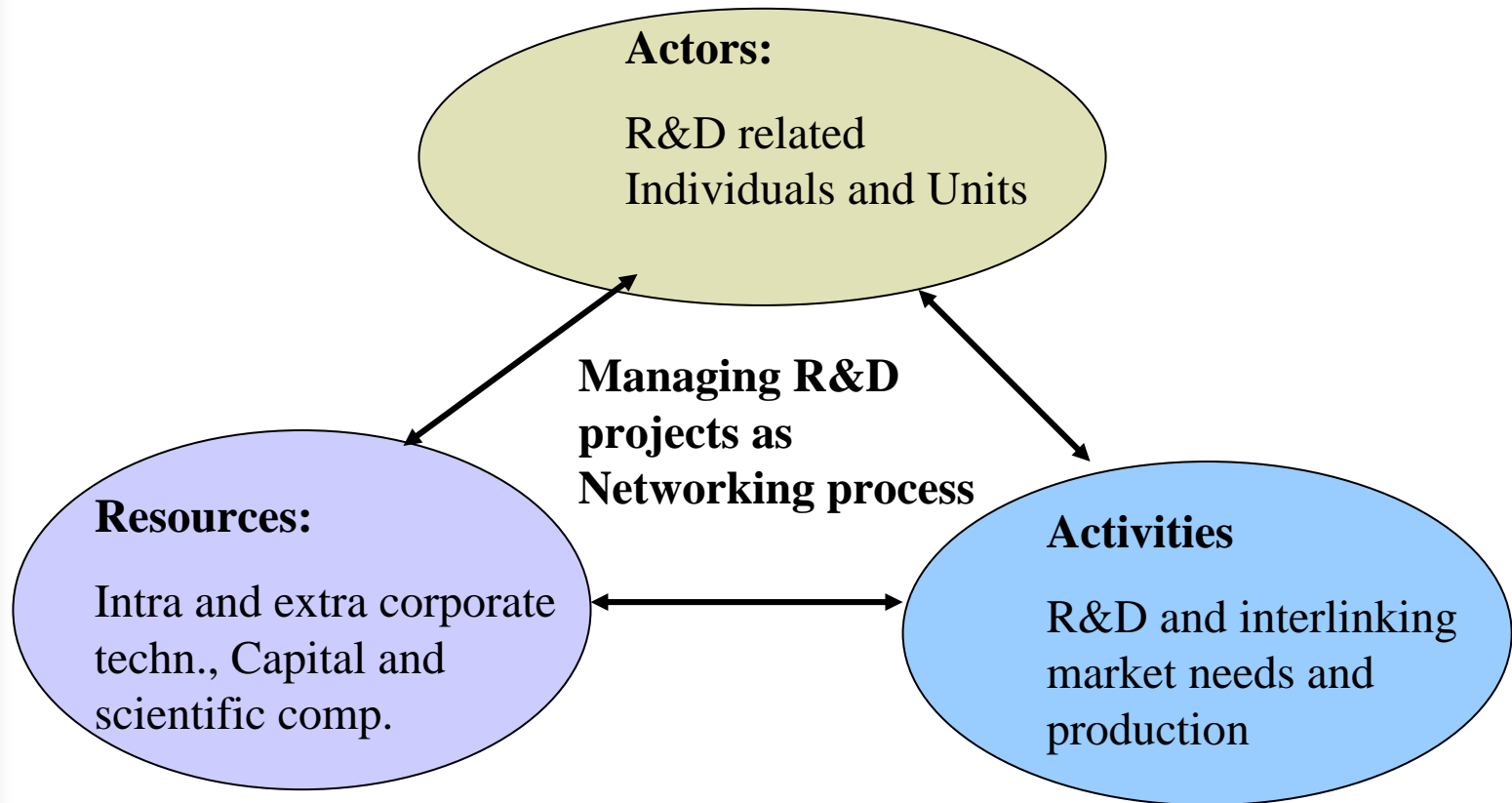
- Linkages
 - Links to market needs can not be neglected
- Circumvention of internal barriers must sometime be done to create products
- Don't forget the affordable price!
- Multifunctional background ease the tranfer process of engineers



Implications of R&D mgmt

- A lack of in-house scientific expertise can often be compensated for
- Letting R&D personnel volunteer for different project increase motivation
- The size of project teams are less important than the number of linkages
- The importance of R&D mgrs depend on ability to create links with actors

Interlinking R&D projects





Some concluding remarks

- Japanese organizations:
 - are homogeneous and encourage group belonging and behaviour
 - are strict hierarcical and promotes both formal and informal networks
 - respect knowledge from other sources
 - respect individual contributions