NEW TRADITIONS
IN THE WORKPLACE

Progress and prognosis for women

in science and engineering

Memorial University of Newfoundland
NSERC/PETRO-CANADA CHAIR
Women In Science and Engineering

Outline

- Background
- Status
  - Canadian
  - Regional and local
- ‘Pipeline’ Analysis
- Actions and agents

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- Rationale
- Strategies
  - Excitement
  - Leadership
  - New Traditions

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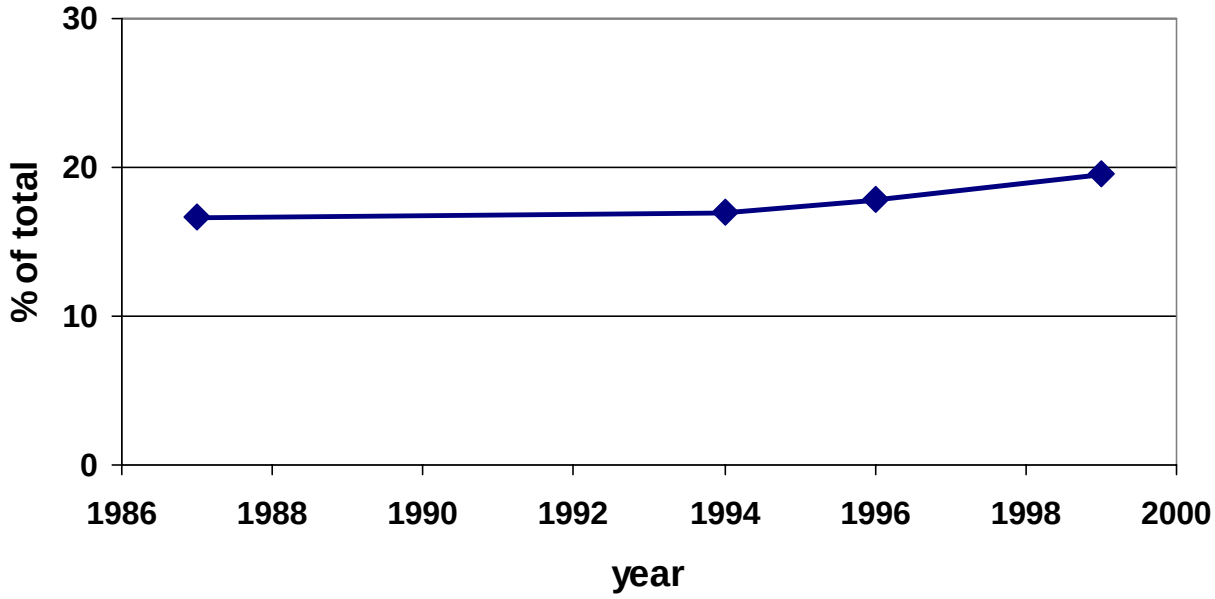
Women employed in science and engineering (Canada)



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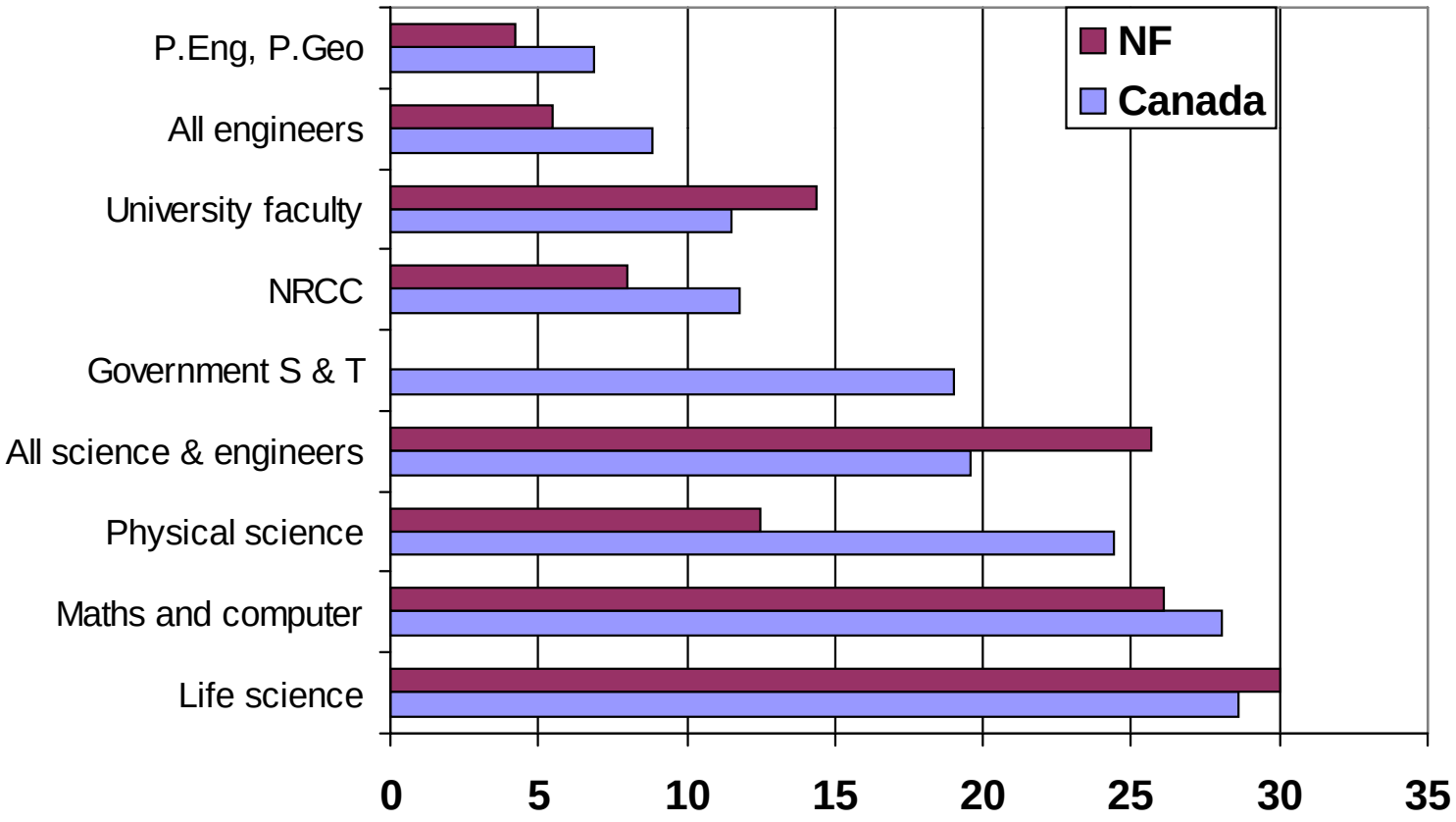
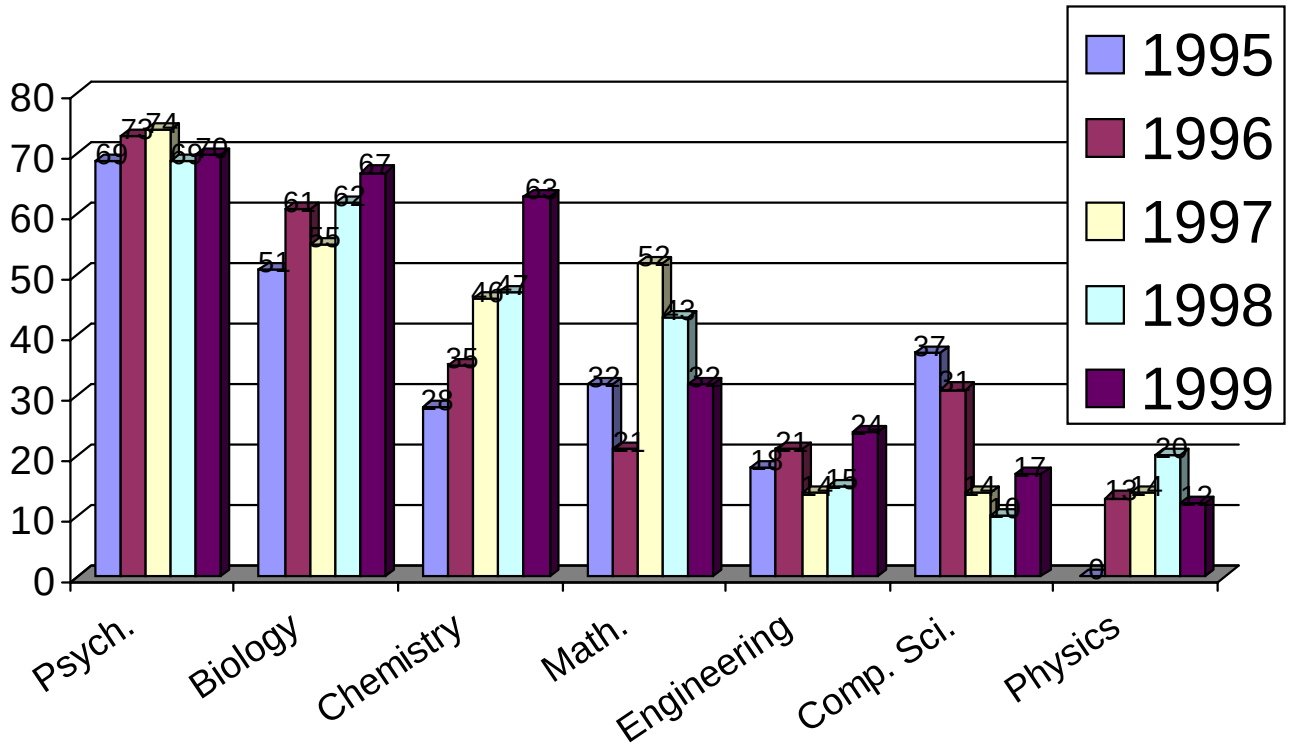
Women as % total employment



% Female Undergraduate Degrees 1995-1999



Critical Mass

- One is not enough
- Benefits of diversity kick in
- Gender schema fade
- Traditions change
- 33%

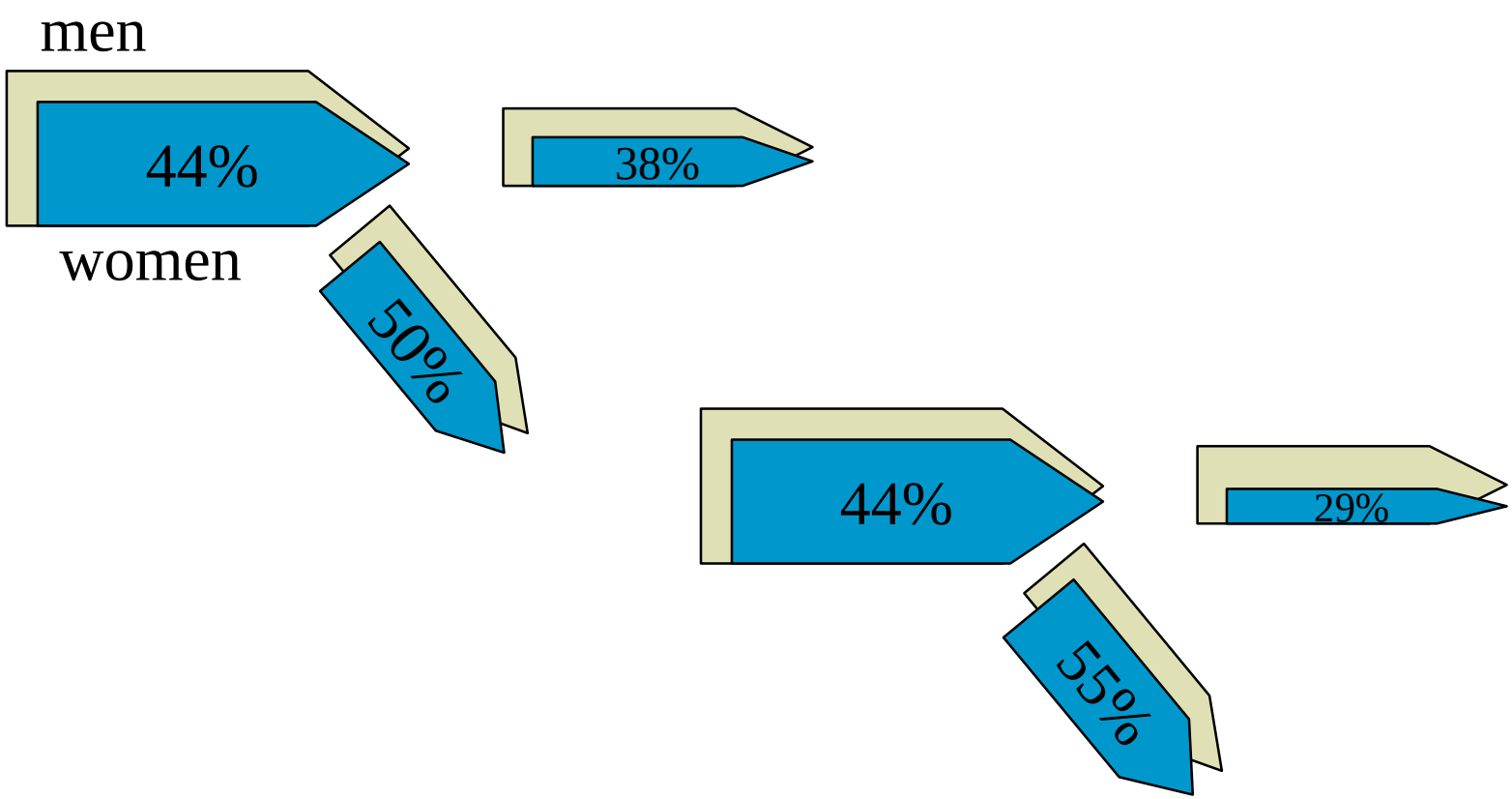
Gender Schema

- Patterns, assumptions and defaults about gender differences in behaviour
- Successful workplace behaviour matches traditional male schema
- Females receive lower evaluations
- Disadvantage accumulates
- Implicit discrimination

Mass Balance

- Input (recruitment)
  - interest
  - ability
  - available pool
- Conversion (retention)
- Output (advancement)

The ‘Pipeline’



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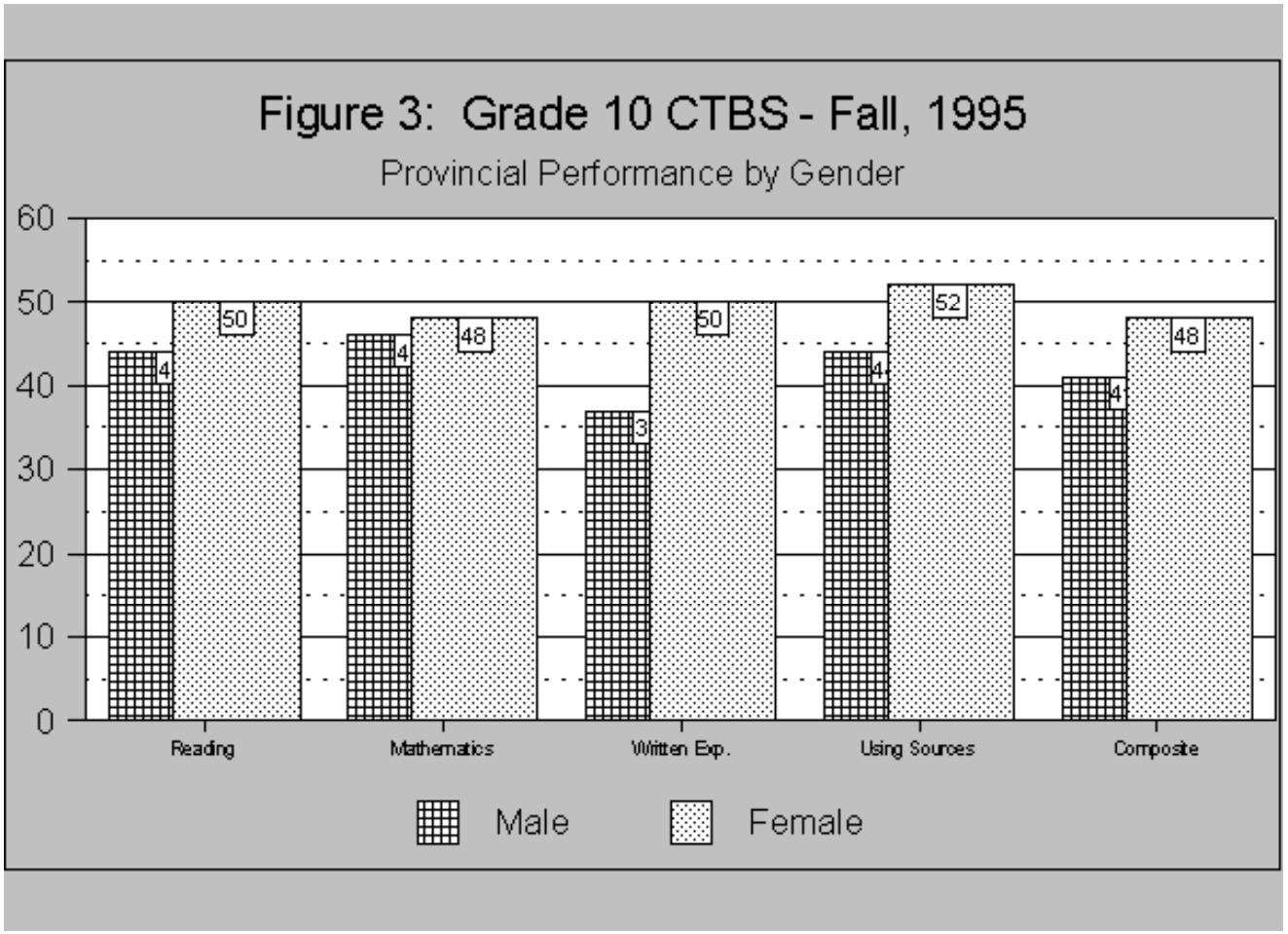
Senior High School

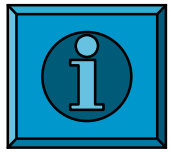
- Input
  - Ability
- Retention
  - Information
  - Confidence
  - Interest
- Women are 44% of undergraduates in university science & engineering

High School Performance



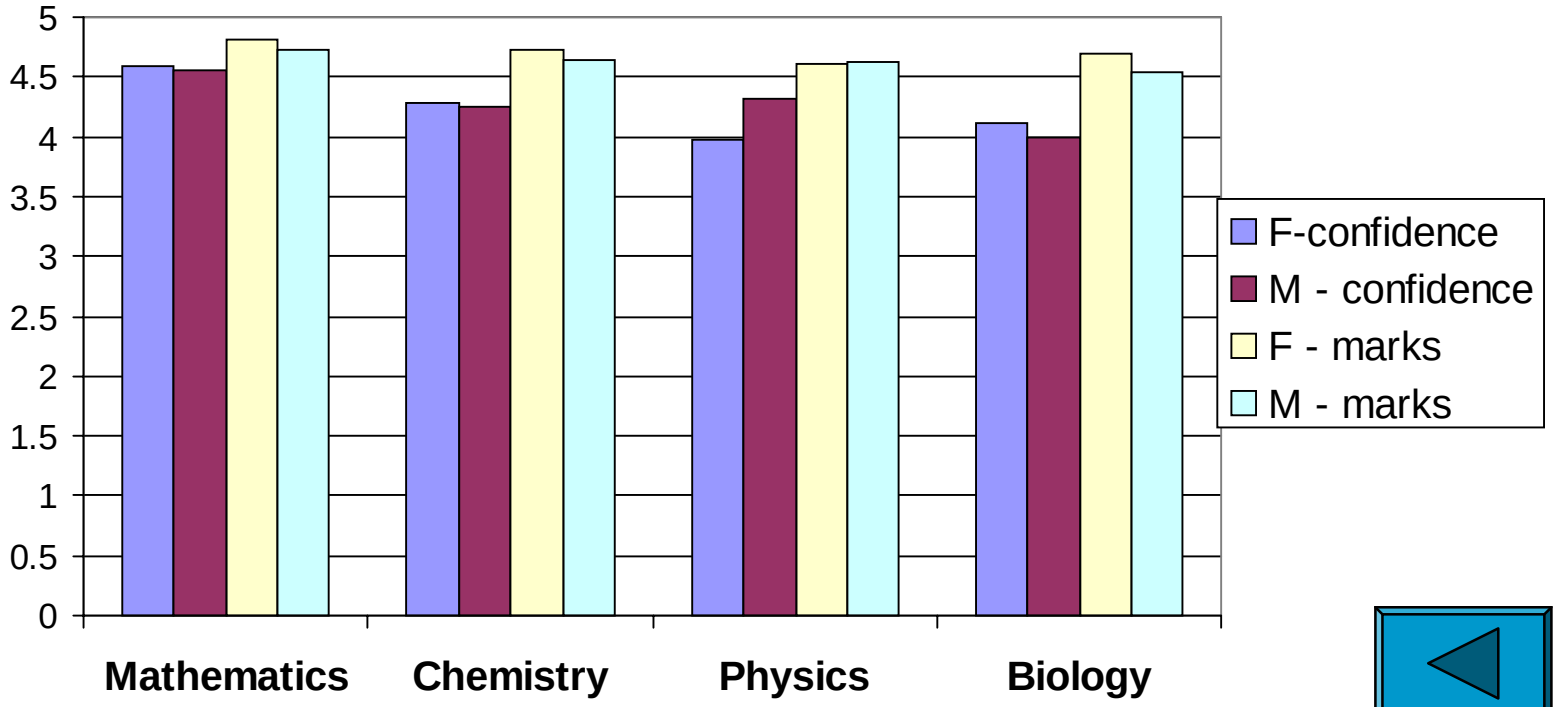
Career Information

- Popular culture
- Direct contacts
  - relatives and friends
  - teachers and guidance counselors
  - school interventions
- Society models



High School Influences

Survey of Undergraduate Engineering Students



High School Retention

- Information
- Confidence
- Interest

- For teachers
- About the workplace
- Good teachers
- Emphasize skills
- Applications
- Links to careers

University Influences

- Mathematics (or Physics) as gateway
  - relational learners in an axiomatic environment
  - success relative to effort at early stages
- Subject matter relevance
- Role model identification
  - gender, age, culture, interests

University Retention

- Gateway
  - Teaching styles
  - Faculty
- Relevance
  - Curriculum
  - Faculty
- Role model
  - Grad students
  - Faculty

Workplace Influences

- Success and acceptance
  - Traditional gender schema
  - Mentors
- Work - life balance
- Job satisfaction

Workplace Retention

- Success
- Work - life balance
- Job satisfaction

- Interrupt schema
- Career support
- Corporate policies
- for men & women
- Value of the work
- Workplace climate

New Tradition Workplaces

- Intellectual assets {{Infrastructure}}
- Continuous learning {{status}}
- Access to information {{control}}
- Development potential {{size}}
- Quality of life {{salary}}
- Values of the organization

New Tradition Workplaces

- Information technology
- Communications
- Biotechnology
- Environmental technologies

Evolved in response to external forces

Emerging Workplaces

- Oil and Gas
- Utilities
- Technical service
- Financial

Change through

- Leadership
- Identify traditions
- Explicit training
- Targeted hiring to reach critical mass

International Examples

- Hungary: 47% Physics Department faculty are women
- Egypt: 40% graduate and undergrad engineering students are women
- India: 65% undergraduate engineering students are women

Traditional Institutions

- Respected history
- External funding source
- Internal standards and evaluations
- Examples (in traditional order)
  - universities
  - professional associations
  - government

New Policies & Practices

- Diversity as a performance standard
- Broad compensation packages
  - leave, professional development
- Flexible work arrangements
- Executive diversity planning
- Employee assistance programs

Summary

- Biases persist until critical mass (33%)
- Critical mass requires new traditions
- External forces or internal leadership and incentives are required to initiate new traditions
- Traditional institutions need work