

Survey of Product Development Expertise in Irish SMEs

1. Purpose

This questionnaire is part of a Dublin City University (DCU) study into the level of product development expertise within Irish SMEs and about gaining an understanding of how Ireland is progressing towards becoming a knowledge based economy.

Due to the relatively limited number of potential respondents, a high response rate is imperative; therefore your responses are extremely valuable.

Please answer all the questions below in full. Your responses are completely confidential and the findings of the study will be made available to all respondents who request them (this will inform you of best practice within your industry).

Please feel free to make as many comments as you like to clarify your answers and provide feedback.

2. Instructions

Please use the 'Prev' and 'Next' button at the bottom of the page to navigate the survey. If you use the browser 'Back' button information will be lost.

Please try and complete the survey in one sitting (it will take 10 to 15 minutes).

If you need to stop and save please go to browser 'Favorites' and then 'Add Favourites'. This will then allow you to continue where you left off (after you press the 'Next' button).

3. Demographic Information

General Information

Name:

Company:

Position:

4. Section I Organisational Structures

1.0 To what extent can it be said of your company that

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
1.1 Cross functional teams are used	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.2 Customers are invited to your company to discuss strengths/weaknesses of your products with a cross-section of employees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.3 Customer feedback on provisional designs are sought	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.4 Employees evaluate competitor products strengths and weaknesses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2.0 To what extent does each person or functional department rely on each other i.e. the flow of work, resources and information

Not at All Very Little Extent Some Extent Great Extent Very Great Extent

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Comment:

5. Section II Change Management

3.0 To what extent have you encountered the following in the context of organisational change

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
3.1 Lack of communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.2 Resistance to change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.3 Fear of change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.4 Lack of commitment from all levels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.5 Lack of retraining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.0 To what extent do you use Change Management Processes

Not at All Very Little Extent Some Extent Great Extent Very Great Extent

Are you involved in your company's strategy development?

Yes No

Comment:

6. Section III Strategy

5.0 To what extent do you

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
5.1 Carry out strategic planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.2 Form a New Product Strategy (NPS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.3 Link your business strategy with your New Product Strategy (NPS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.4 Utilize knowledge from partnerships with customers, suppliers, competitors and/or universities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.5 Develop related products on a common structure (platform)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.6 Form a mission statement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.7 Identify what factors make your competitors profitable and successful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.8 Identify solutions for your customers to these factors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.9 Carry out a market and industry trend analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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6.0 To what extent do you compare external market, technology or product opportunities with your internal business strengths

Not at All
 Very Little Extent
 Some Extent
 Great Extent
 Very Great Extent

Comment:

7. Section III Strategy

7.0 To what extent do you consider the following business thrusts (directions) when developing business strategy

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
7.1 Technology driven strategies i.e. strongly R&D inclined, advanced technologies resulting in advanced products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.2 Marketing driven strategies i.e. new product development is based on market needs and wants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.3 A focused strategy i.e. develop similar products based on related markets, technologies and manufacturing methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.4 Offensive not defensive strategies i.e. aggressive product idea search, aimed at growth and gaining market share	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8.0 To what extent are your projects

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
8.1 Balanced e.g. long term/short term, high risk/low risk, by markets, technologies, products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.2 Aligned to your business strategy in terms of market, product or technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.3 Prioritised and selected based on potential commercial value	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9.0 To what extent do you map future technology against current customer and technology requirements

Not at All
 Very Little Extent
 Some Extent
 Great Extent
 Very Great Extent

10.0 To what extent do these describe your business strategy (allocate 100 points between answers)

10.1 A differentiated strategy which attacks high growth and high potential markets with weak competition	<input type="text"/>
10.2 Low R&D spending with "me-too" new products - new products are developed in line with your core business and markets	<input type="text"/>
10.3 An innovative technology driven strategy	<input type="text"/>
10.4 Develop "me-too" products with low technology and low risk, bad fit with current company technology and manufacturing capabilities	<input type="text"/>
10.5 High levels of unfocused R&D spending, strategy attacks new markets and new technologies unsuccessfully	<input type="text"/>

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Comment:

8. Section IV Backend Marketing and Branding

11.0 To what extent would you say it was true of your organisation that

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
11.1 Marketing is very important to company success	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.2 There is an emphasis on price rather than other product attributes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.3 You have a guaranteed business and do not need to carry out marketing to ensure survival	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.4 You have a heavy reliance on one customer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.5 Networking is very important to company success	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12.0 To what extent do you

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
12.1 Consider Product, Price, Promotion and Placement (marketing mix)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.2 Consider branding in your marketing mix	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.3 Manage ongoing changes in the marketing mix	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comment:

9. Section V Innovation and Leadership

13.0 To what extent is an employee seen in a negative light if an error is made

Not at All Very Little Extent Some Extent Great Extent Very Great Extent

14.0 What is the average number of years management staff are with your company

15.0 To what extent does the Owner/Manager assume the role of facilitator during development activity

Not at All Very Little Extent Some Extent Great Extent Very Great Extent

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Comment:

10. Section VI Tools and Methodologies

16.0 To what extent can it be said of your company that

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
16.1 Based on customer requirements the critical to quality (CTQ) requirements are translated into functional and critical to process (CTP) requirements	ja	ja	ja	ja	ja
16.2 Based on product attributes the level of customer satisfaction is understood	ja	ja	ja	ja	ja
16.3 Customer usage of the new product is identified and possible usage predicted	ja	ja	ja	ja	ja
16.4 Based upon customer requirements and usage information, spoken and unspoken demands are identified	ja	ja	ja	ja	ja
16.5 Sets of requirements are organised by a team to aid understanding	ja	ja	ja	ja	ja
16.6 The possible modes of failure of a product or process, and the likely consequences of such failure are identified	ja	ja	ja	ja	ja
16.7 Reduction of concepts is conducted by systematically examining each option	ja	ja	ja	ja	ja

17.0 To what extent do you use the following Tools and Methodologies

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
17.1 Quality Function Deployment (QFD)	ja	ja	ja	ja	ja
17.2 Kano Model	ja	ja	ja	ja	ja
17.3 Voice of the Customer Tables	ja	ja	ja	ja	ja
17.4 Affinity Diagram	ja	ja	ja	ja	ja
17.5 Failure Mode and Effect Analysis	ja	ja	ja	ja	ja
17.6 Concept classification tree	ja	ja	ja	ja	ja
17.7 Concept combination table	ja	ja	ja	ja	ja
17.8 TRIZ	ja	ja	ja	ja	ja
17.9 Pugh Concept Selection Technique	ja	ja	ja	ja	ja
17.10 Robust Design	ja	ja	ja	ja	ja
17.11 Design of Experiments (DOE)	ja	ja	ja	ja	ja
17.12 Design for manufacture and assembly (DFMA)	ja	ja	ja	ja	ja
17.13 In relation to Design of Experiments 'One-factor-at-a-time' plans are used	ja	ja	ja	ja	ja

Comment:

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11. Section VI Tools and Methodologies

18.0 To what extent can it be said of your company that

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
18.1 Potential concept 'combinations' are developed and refined to find the best solution	jn	jn	jn	jn	jn
18.2 The designer envisages the ideal solution to a problem and uses it as a goal	jn	jn	jn	jn	jn
18.3 Contradictions (increased strength results in increased weight) are designed out	jn	jn	jn	jn	jn
18.4 Sustainable Product and/or Service Development (SPSD) is carried out by balancing economic, environmental and social aspects	jn	jn	jn	jn	jn
18.5 You are more likely to 'control' noise factors than use 'experiments' to design them out e.g. design a hermetically sealed unit to control humidity	jn	jn	jn	jn	jn
18.6 Industrial design is used	jn	jn	jn	jn	jn
18.7 A 'simple model' is used that captures the design concept such that specific control, noise and signal parameters can be changed	jn	jn	jn	jn	jn

Comment:

12. Section VII Technology/Technology Development

19.0 To what extent can it be said of your company that

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
19.1 Idea generation (ideation) is carried out using tools and methodologies	jn	jn	jn	jn	jn
19.2 Technology is developed offline and merged with new products	jn	jn	jn	jn	jn
19.3 Computer Aided Engineering is used	jn	jn	jn	jn	jn
19.4 Technology is developed within the Product Development Process	jn	jn	jn	jn	jn
19.5 Computer Aided Design (CAD) systems are used	jn	jn	jn	jn	jn
19.6 IGES files are read into a Computer Aided Manufacturing (CAM) system and used to generate G/M Codes	jn	jn	jn	jn	jn
19.7 Netmeeting or WebEx are used	jn	jn	jn	jn	jn
19.8 STEP AP214 (containing a 3D model) is used for CAD/CAM integration	jn	jn	jn	jn	jn
19.9 Indirect Rapid tooling is used	jn	jn	jn	jn	jn
19.10 Direct Rapid tooling is used	jn	jn	jn	jn	jn
19.11 Rapid Prototyping is used	jn	jn	jn	jn	jn
19.12 Reverse Engineering is used	jn	jn	jn	jn	jn
19.13 Computer Aided Process Planning (CAPP) is used	jn	jn	jn	jn	jn

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20.0 To what extent do you develop (allocate 100 points between answers)

20.1 Incremental products

20.2 Breakthrough products

Comment:

13. Section VIII Intellectual Property

21.0 To what extent do you use the following methods of Intellectual Property Protection (IPP)

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
21.1 Patents	jn	jn	jn	jn	jn
21.2 Secrecy	jn	jn	jn	jn	jn
21.3 Lead time i.e. Fast Time To Market	jn	jn	jn	jn	jn

22.0 To what extent can it be said of your company that

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
22.1 Employees sign agreements such that the rights of their inventions remain within the company	jn	jn	jn	jn	jn
22.2 Employees are trained on company specific methods of intellectual property protection	jn	jn	jn	jn	jn
22.3 Employee notebooks and timesheets are used for project diligence e.g. date of a patentable invention	jn	jn	jn	jn	jn
22.4 Confidential agreements are signed with outsiders	jn	jn	jn	jn	jn

23.0 To what extent do you

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
23.1 Have an intellectual property strategy	jn	jn	jn	jn	jn
23.2 Use an intellectual property portfolio	jn	jn	jn	jn	jn

Comment:

14. Section IX Product Development Process Structure

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24.0 To what extent do the following characteristics describe your development process

	Not at All	Very Little Extent	Some Extent	Great Extent	Very Great Extent
24.1 Each phase stops at a functional department and then moves to the next department when finished	jn	jn	jn	jn	jn
24.2 Design-build-test cycles are used (iteration)	jn	jn	jn	jn	jn
24.3 A budget or schedule limit is set - prototype iterations occur until it is reached	jn	jn	jn	jn	jn
24.4 Live knowledge (data) from actual prototypes is used for decision making	jn	jn	jn	jn	jn
24.5 Risky solutions are placed in a knowledge base for future projects	jn	jn	jn	jn	jn
24.6 'Multiple' sets of concepts are developed against broad specifications, systematically eliminating or combining to tighter specifications	jn	jn	jn	jn	jn
24.7 The developer always has at least one working prototype when milestones are reached	jn	jn	jn	jn	jn
24.8 Design reviews are hands on i.e. technical managers reviewing technical results (not the amount of tasks completed)	jn	jn	jn	jn	jn
24.9 Design and manufacturing issues are considered at the beginning of the product development process	jn	jn	jn	jn	jn
24.10 Multiple design alternatives are evaluated with simulation software rather than actual prototypes	jn	jn	jn	jn	jn
24.11 Milestones are set throughout the development process	jn	jn	jn	jn	jn
24.12 Products and processes are designed in parallel	jn	jn	jn	jn	jn
24.13 Lead times are reduced by speeding up the product development process	jn	jn	jn	jn	jn

25.0 To what extent do you use the Stage Gate process

Not at All
 Very Little Extent
 Some Extent
 Great Extent
 Very Great Extent

26.0 Which of these best describes your product development environment (pick one)

26.1 The basis of the engineering environment is the structure of the operational activities: procedures, control, compliance, related training.

26.2 The basis of the engineering environment is the knowledge of individual workers: understanding of needs, information availability, responsibility, team interaction.

Comment:

15. Section X Culture

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27.0 What is your company's quality management environment (select all that apply)

- 27.1 ISO 27.2 Six Sigma 27.3 Lean 27.4 TQM 27.5 Hybrid 27.6 Other

Other (please specify)

Comment:

16. Section XI Performance

This section looks for some approximate numerical data related to your company and product development performance. Please answer all that you can.

28.0 Total number of patents held

Number of Patents

29.0 Concept Generation: Number of new product ideas, product enhancement ideas evaluated in the last year

Number of Significant Ideas

30.0 Now many patent applications have you filed in the last year

Number of Applications

31.0 Number of design changes in last year resulting from customer complaints

Number of Significant Design Changes

32.0 Percentage projects delayed/cancelled due to lack of funding

Number (Percentage)

33.0 Percentage projects delayed/cancelled due to lack of human resources

Number (Percentage)

34.0 Currently what percentage of your product sales consist of industrial components sold to other firms as parts for their products, rather than sold as your final product

Number (Percentage)

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35.0 During the past three years your market-share in your industry

- Has reduced significantly
- Has reduced by a small amount
- Has remained the same
- Has increased by a small amount
- Has increased significantly

36.0 Percentage sales from new products in the last three years has

- Been considerably below expectations
- Been below expectations
- Met expectations
- Exceeded expectations
- Greatly exceeded expectations

37.0 Indicate your company's overall performance/success in relation to your competitors (with similar sales volumes):

- 0 (LOW)
- 1
- 2
- 3
- 4
- 5
- 6 (HIGH)

Comment:

17. Section XII Company Profile

38.0 Industry Sector

- | | |
|--|---|
| <input type="radio"/> 38.1 Rubber and Plastic Products | <input type="radio"/> 38.7 Fabricated Metal Products |
| <input type="radio"/> 38.2 Manufacture of office equipment and computers | <input type="radio"/> 38.8 Electronics components |
| <input type="radio"/> 38.3 Instrumentation | <input type="radio"/> 38.9 Manufacture of domestic appliances |
| <input type="radio"/> 38.4 Manufacture of machinery | <input type="radio"/> 38.10 Communications equipment |
| <input type="radio"/> 38.5 Manufacture of electrical machinery and equipment | <input type="radio"/> 38.11 Healthcare products |
| <input type="radio"/> 38.6 Transport and transport equipment | <input type="radio"/> 38.12 Other |

Other (please specify)

39.0 Please indicate how many persons are employed in your company

- 1-5
- 6-10
- 11-20
- 21-50
- 51-100
- 101-250

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40.0 Please state how many persons are involved full time in product development/R&D

Number of Persons

41.0 Please indicate what area of the country your main site is located in

41.1 North West

41.5 South

41.2 North East

41.6 West

41.3 East (including Dublin)

41.7 Mid West

41.4 South East

41.8 Midlands

42.0 Approximately, what percentage of your company's current sales derive from export

Percentage of Sales

43.0 Is your company publicly quoted

Yes

No

44.0 Would you like a report on the survey findings

Yes

No

Comment:

18. Thank You

Thank you for your valuable time. When you press 'Done' your responses are sent.